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Education Policies for Sub-Saharan Africa: Adjustment, Revitalization, and Expansion

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EXECUTIVE SUMMARY

Since their independence, the nations of sub-Saharan Africa have invested heavily in education.^{1/} In many African countries, however, enrollments have stagnated recently, and the quality of education has apparently declined. These reversals have occurred in an environment characterized by unprecedented population growth, mounting fiscal austerity, and often tenuous political and administrative institutions. Each of these factors has hurt education, and the ensuing deterioration in educational services has made it more difficult to solve the region's economic and social problems, thus fueling a cycle of eroding prospects for the people of the region. To break this cycle, there is value in identifying policies that will renew progress in Africa's education and training.

Any discussion of policies and priorities for a region as vast and diverse as sub-Saharan Africa naturally runs the risk of overstating commonalities and understating differences. The educational achievements and aspirations of individual countries and the socio-economic and political constraints within countries vary too much for any single comprehensive set of measures to be completely or uniformly applicable. This paper is about diverse and variably applicable policies for African educational development, not about a monolithic and universally applicable policy. In the end, national authorities in each country must decide the priorities for educational investments and tailor those investments to the country's specific needs, conditions, and aspirations. This paper is intended to provide a framework that may assist African policymakers in this process.

Educational development in Africa -- past progress and the current challenge

African societies have a long and rich history of education and training. Indigenous education was practiced by all groups and remains an important transmitter of cultural identity from one generation to the next. Pre-colonial Christianity and Islam, with their roots extending back centuries, had a pervasive influence on community life and perceptions in many parts of the region.

In the colonial era, missionaries and metropolitan governments opened up a network of Western-type schools in Africa. The administration of education systems was dominated, however, by expatriates, as was teaching beyond the primary level. Moreover, during this period, access to education was quite limited, especially in the thinly populated areas of French West Africa. By 1960, the gross primary enrollment ratio in all of sub-Saharan Africa was still only 36%. This was about half the levels then found in Asia and Latin America. Many countries -- including The Gambia, Cote d'Ivoire, and Senegal in West Africa and Tanzania and Somalia in East Africa -- had literacy rates below 10% at the time of independence.

^{1/} Most of the discussion and all of the Africa-wide statistics in this paper refer to thirty-nine countries south of the Sahara. Whenever the term "Africa" or "African" is used, it refers only to these countries and their residents.

Progress since independence. The systems of education inherited by the African nations at the time of independence were thus quite inadequate to meet the needs of self-governance and rapid economic growth. From this low starting point, the progress achieved in African education has been spectacular. Quantitative expansion has been particularly impressive. Between 1960 and 1983, the number of students enrolled in African institutions at all levels quintupled to about 63 million students. Enrollments increased about 9% annually during the 1970s, double the rate in Asia and triple that in Latin America. At the primary level, the gross enrollment ratio rose from 36% in 1960 to 75% in 1983. At the tertiary level, the number of students enrolled in African institutions had reached 437,000 by 1983, growing from just 21,000 in 1960. The substantial expansion of education since independence has allowed the increased participation of some groups who had little or no prior access to formal education.

The consequence of this massive educational expansion has been a substantial deepening of the human capital stock. The estimated average educational attainment of working age men and women in the median African country increased from less than half a year in 1960 to more than three years in the early 1980s. The adult literacy rate in the median country rose from about 9% to 42%.

The current challenge. The advances since the early 1960s are now seriously threatened -- in part by circumstances outside education. Africa's explosive population growth greatly increases the number of children seeking access to schools and the number of potential illiterates. Between 1970 and 1980 Africa's population grew at 2.9% a year, a full percentage point higher than the worldwide rate. Between 1980 and the end of the century, Africa's population is projected to grow at 3.2% a year, its primary and secondary school-age population at 3.3%. If the growth of educational places is to keep pace with the growth of the school-age population, more schools, teachers, books, and other inputs are required each year. This requirement comes at a time when the recent economic decline has necessitated significant cutbacks in public spending. Public spending on education in Africa has not been spared, declining from \$10 billion in 1980 to \$8.9 billion in 1983. These fundamental facts sharply constrain the options open to policymakers and have serious implications for African education policy.

The main educational issues in Africa today are the stagnation of enrollments and the erosion of quality. Although total enrollments in sub-Saharan Africa grew at an average annual rate of 6.5% during 1960-70 and 8.9% during 1970-80, the rate of increase plummeted to 4.2% in the first three years of the 1980s. The slowing of enrollment growth affected all levels of education but was most evident at the primary level, where the rate of growth fell from 8.4% a year during 1970-80 to 2.9% in 1980-83. If the population of primary school-age children increases at the projected average annual rate of 3.3%, a 2.9% increase in enrollments will not even keep pace. And so long as enrollments stagnate, there is little likelihood that current inequalities in access to education can be eliminated.

Complicating the problems of stagnant enrollments are the low levels and recent erosions of educational quality. Levels of cognitive achievement among African students are low by world standards, and there is some suggestion of further decline recently. Much of the evidence is indirect, focusing on critically low levels of key inputs (especially books and other learning materials) and on recent decline in the use of these inputs relative to that of teacher time and physical facilities. Less is known on the output side. But the performance of African students in cross-national studies of academic achievement has been sufficiently poor to be a major cause for concern.

Addressing these issues of stagnation and low quality will require additional resources. More important, it will require profound changes in educational policy for many countries. Indeed, for most African countries, the first will not be obtainable without the second.

A policy framework -- adjustment, revitalization, and selective expansion

Hard decisions on education policy should not be postponed. In most African countries the cost would be continued enrollment stagnation and quality decline through the 1990s. This paper urgently recommends that each African nation now embrace the task of formulating and implementing an internally coherent set of policies that reflects the nation's unique history and aspirations and one that will effectively address its own recently exacerbated problems in the education and training sector. While the particulars of the policy packages that emerge from this exercise would vary from one country to the next, it is nonetheless clear that every country-specific package will need to contain, in varying proportions, elements of policy along three distinct dimensions. These three are adjustment, revitalization, and selective expansion. Moreover, if new policies are in fact to be implemented, management practices will need to be improved.

Although undoubtedly painful and politically difficult, adjustment policies will alleviate the burden of education and training on public budgets. Measures for revitalization and expansion, on the other hand, will certainly require an incremental flow of resources. Thus, in the context of ongoing austerity in Africa, resolute movement toward adjustment is a necessary condition for implementing forward-looking policies on the other two dimensions.

Adjustment to current demographic and fiscal realities, though it will be difficult, is essential if the disruptive effects of these external factors are to be minimized in the years ahead. Adjustment will take two main forms:

- o Diversifying sources of finance. This will be a necessary part of country-specific policy packages. This diversification can be achieved through increased cost-sharing in public education and through increased official tolerance and encouragement of nongovernmental suppliers of educational services.

- o Unit cost containment. The rigorous containment of unit costs will be just as important in the adjustment process, and in many countries, probably more important, than policies to diversify sources of finance. The most promising areas for the containment of costs are teachers' salaries, teacher utilization, construction standards, and student repetition and dropout behavior.

Revitalization of the educational infrastructure that now exists, in order to restore quality, is the second dimension of a properly conceived educational strategy. This involves a renewed focus on the fundamentals of educational provision so that maximum advantage is extracted from the current capacity of education and training systems. Three kinds of measures are necessary for the restoration of quality:

- o Academic standards. There must be a renewed commitment to standards, principally through the strengthening of examination systems.
- o Instructional materials. Efforts should be made to restore an efficient mix of inputs in education. The provision of a minimum package of textbooks and other learning materials is usually the most pressing need in this respect.
- o Operation and maintenance of physical plant and equipment. Greater investment must be made in the maintenance of physical plant and equipment, and there is a need for greater expenditure on other inputs that would result in increased utilization of these capital assets.

Selective expansion to address needs for further educational services is the third dimension of any complete strategy for educational development. Measures in this area, viable only after measures of adjustment and revitalization have begun to take hold, will concentrate in four areas; success in all will depend upon a general effort to safeguard the quality of instructional staff at all levels.

- o Renewed progress toward universal primary education. Expanding access to primary education is the new investment that will bring the highest economic and social returns in many countries.
- o Distance education programs. At the secondary level, and later on at the tertiary, expansion of enrollments in selected subjects and streams will be necessary in most countries in the years ahead. To accommodate these increases in post-primary education, most countries will need to consider alternative delivery modes that shift more of the burden for learning onto the students themselves; now is the time to begin planning for such programs and developing their requisite support infrastructure (correspondence materials, radio programs, and examinations systems).

- o Training. The amount of training that occurs once individuals have entered the labor force must be increased; this training should serve both school leavers and also those who have had no exposure to formal schooling, so that individuals can acquire the necessary job-related skills and renew these skills during their working lifetime in response to changing market conditions.

- o Research and postgraduate education. Expansion of African capacity to produce its own intellectual talent to fill the highest scientific and technical jobs in educational establishments, in government, and in the private sector is an important matter to be addressed in building for Africa's future.

For most African countries, the formulation of a comprehensive and coherent education development program, derived from a balanced package of policies for adjustment, revitalization, and selective expansion, will be a new experience. Each country will organize for the task in its own way. In many countries, however, a fruitful approach to policy design might be expected to include the following: establishing a national commission to oversee the work; constituting a technical staff to support the commission; for both, drawing upon the best political judgment and analytical talent from ministries of finance and planning as well as education, and from the nation's institutions of tertiary education and research; building a national consensus through public debate of emerging findings and recommendations; and taking advantage of the experience of other African countries in developing the nation's own education development strategies. All such activities would, of course, entail costs, and these would need to be financed. Budgetary resources would have to be sufficient to cover not only the personnel costs of the national commission but also its operating expenses for travel, communications, publications, and specialized contractual services (such as data collection and processing, expert technical consultants, targeted research and analysis).

While careful elaboration of education development programs is urgent and essential, African capacity for implementation will ultimately determine their impact. Improvement in education management is a necessary concomitant to policy reform and must be given immediate and continuing attention.

Here the most important measures involve the potential returns to downward and outward delegation of various administrative functions. While some functions must appropriately remain at the central ministry level, and the performance of these functions will need to be improved, the toughest challenge to improving management lies closer to the classroom, at the level of individual schools and districts. African policymakers should consider how, with adequate safeguards against abuses, schools and the local communities they serve can be given increased authority in the acquisition and utilization of the resources essential to effective classroom teaching and learning.

In addition, central ministries must tend more seriously to their own management development needs, especially in the areas of performance monitoring and policy planning and analysis. Improvements in examination systems (which was mentioned above with reference both to academic standards and to distance education), in the nature and timely availability

of statistical and financial accounting information, and in the numbers and qualifications of staff engaged in full-time analytical work are among the necessary measures. Incentives in many ministries of education are insufficient to attract, motivate, and retain able staff. Governments committed not only to formulation of an educational development program but also to its expeditious implementation will have imaginatively to address the issue of incentives at all levels of the educational system.

Policy options by level of education

The mix of adjustment, revitalization, and expansion components that is appropriate in light of country-specific conditions and goals can be expected to differ. Within a country, the mix will differ also among levels of education.

At the primary level in most African countries, there is only limited scope for adjustment, in the form of either lowered unit costs or increased cost sharing. There is, however, good potential for improvements in the quality of output, that is, for revitalizing primary education, through a shift in the input mix toward textbooks and learning materials. At the secondary level there is far more scope for containing unit costs -- partly through making fuller use of available resources and partly through switching to cheaper ways of providing services. Higher education poses a set of problems uniquely its own. Rapid expansion has left in its wake an abundance of institutions, programs, and graduates that are often of low quality and dubious relevance. Modest consolidation, an adjustment measure that would lower unit costs, and increased cost sharing are the first steps on the road to higher education's revitalization, which should be regarded as a prerequisite for any further expansion of the sub-sector.

Primary education. During the 1960s and 1970s some analysts warned that sub-Saharan Africa's preoccupation with the quantity of education would lead to a serious deterioration in quality. In the countries where educational standards have deteriorated most, the choice between expansion and quality is no longer an either-or choice. Without some basic revitalizing inputs, particularly textbooks and instructional materials, almost no learning can be expected to occur. Ensuring the availability of essential inputs is a prerequisite both for quality improvement and for expansion. Beyond this minimal level, however, is the question of finding for each country an appropriate balance of quality and enrollment -- of identifying efficient approaches to qualitative enhancement and quantitative expansion, and of financing improvements in both.

A review of possible measures for improving the quality of primary education results in two broad conclusions:

- o First, the safest investment in educational quality in most countries is to make sure that there are enough books and supplies. These materials are effective in raising test scores and, almost invariably, have been underfunded relative to teachers' salaries. This is also an area where external aid has a comparative advantage. Other areas that appear to have the potential to improve quality

include school feeding and health programs, intensive use of radio, in-service education of teachers in subject matter, and strengthened inspection and supervision systems.

- o Second, some investments are not likely to have a noticeable effect on primary school quality despite their potentially high costs. These investments include reducing class size (within the range between 25 and 50), providing primary teachers with more than a general secondary education, providing teachers with more than minimal exposure to pedagogical theory, constructing high-quality buildings, and introducing classroom televisions or computers.

Even with no quality improvements (and assuming no improvements in efficiency), the resources devoted to the primary level would need to increase more than 3% a year just to keep pace with population growth. There is, however, little likelihood of reducing unit recurrent costs at this level significantly, especially if countries hope also to improve the quality of education. There is more scope for reducing unit capital costs, but even so, it is unlikely that overall per pupil costs can be reduced very much at the primary level. Thus, the further growth of primary education will require additional resources.

Secondary education and training. Can adjustment measures at the secondary level generate sufficient savings to provide the necessary nonsalary recurrent inputs (books and supplies) and achieve significant capacity expansion? Substantial economies are possible in the operation of regular schools. There can also be economies from reductions in boarding. And most significant, there can be economies from the creation of distance education systems combining radio and correspondence techniques that would allow expansion of reasonable quality secondary education to many more communities than could be reached in any other way for the same price.

Beyond this general support for expanding access to secondary education, African governments should give serious consideration to policies designed to remedy existing inequalities in school participation. Females are the largest underrepresented group. Small, community-based schools (whether relying on distance education or not) will tend to attract girls more readily than larger schools located in urban centers and at greater average distances from homes. Although smaller conventional schools may imply higher unit costs, this is not necessarily true if larger schools tend to include boarding facilities while smaller schools do not. Increasing the number of female teachers may also attract more girls, especially in Islamic areas.

Another set of issues to be addressed mainly at the secondary level concerns the relevance of the curriculum to the needs of individuals and societies. The main questions that many countries face are when and how to make the transition from subjects that have broad vocational relevance (language, mathematics, and science) to programs and subjects that will prepare individuals for specific jobs or clusters of jobs. International experience shows that a strong general education, which schools provide efficiently, greatly enhances an individual's future

trainability. It also shows that job-specific training is very important. Such training usually is most efficiently provided after initial job decisions have been made and in institutions under, or strongly influenced by, the ultimate employer. Occupation-specific and job-specific training need not provide individuals with degrees or credentials.

Because of the high costs and lack of vocational relevance of many school-based approaches directed to specific jobs and occupations, there is an urgent need to develop (through incentive schemes and technical assistance) local capacity to provide on-the-job training, other firm-based skills development programs, and industrial training centers. Governments interested in laying the groundwork for a more technically-oriented economy may also wish to consider placing heavy emphasis on general mathematics and scientific skills in the secondary and post-secondary curriculum. These programs tend to be relatively inexpensive and are likely to prove more conducive to economic growth than an emphasis on in-school vocational education.

Higher education. Preparing and supporting people in positions of responsibility -- in government, in business, and in the professions -- is the central and essential role of the continent's universities. In numbers at least, the universities have risen impressively to this challenge. Enrollments grew from 21,000 in 1960 to more than 430,000 in 1983.

Higher education's contribution to development in Africa is being threatened, however, by four interrelated weaknesses. First, higher education is now producing relatively too many graduates of programs of dubious quality and relevance, and too little new knowledge and direct development support. Second, the quality of these outputs shows unmistakable signs in many countries of having deteriorated so far as to cast doubt on their fundamental effectiveness. Third, the costs of higher education are needlessly high. Fourth, the pattern of financing higher education is socially inequitable and economically inefficient.

Wherever the foregoing diagnosis of weaknesses in higher education can be confirmed, policy reform should seek four objectives: (i) improving quality; (ii) increasing efficiency; (iii) changing the output mix, which may imply smaller enrollments in certain fields of study; and (iv) relieving the burden on public sources of financing, by increasing the participation of beneficiaries and their families. But quality improvements, the first objective, will cost money. Thus, implementing adjustment policies to achieve the other three objectives will, almost everywhere in Africa, be a prerequisite for freeing the resources needed to achieve the first.

The role of the international donor community

This paper argues that adjustment measures are needed to alleviate the burden of education and training on public budgets in Africa. The "savings" generated from the lowering of unit costs and from increased cost sharing and increased tolerance of private provision of educational services can be used to help fund the necessary revitalization and ultimate expansion of the sector.

Regrettably, all such savings from adjustment measures will not be sufficient, in most countries, to cover the very substantial resource requirements of the policies needed to revitalize and build African education to the extent essential for future development. International aid will remain a critically important determinant of the pace of progress of education in the region. However, the rapid evolution of African needs, as summarized in the three dimensional framework for policy reform, demands corresponding changes in the organization, nature, and level of international aid for African educational development.

The pressing requirement is for aid in support of policy reform. The international donor community should offer three related kinds of support for the design of national policy.

- o The first form of planning support is simple: seed money, quickly provided, to cover both local and foreign costs of policy development and management improvement. The willingness of international donors to bear a part of these extraordinary expenses, perhaps on a matching basis, would provide an important incentive to African governments.
- o The second kind of support the international community should provide to an African country that embarks on a serious reform of educational policy is to ensure ready access to the ongoing experience of other countries in formulating and implementing such reform. Intensive collaboration across countries, so that they share their accumulated experience widely, will pay high dividends as countries grapple with common issues.
- o Third, the international donor community could establish and finance a source of high-quality specialized technical expertise, without financial or political ties to any government or international donor. African governments could call on this source for help in formulating policies at the outset and in monitoring, evaluating, and correcting them during implementation.

Appropriate mechanisms do not now exist for meeting these three interrelated needs for the improvement of policy development. The requirement is for expeditious action to develop them. Any initiative in this area that would take more than a year to adopt and implement would be an inadequate response to the needs of African governments.

Beyond its assistance for policy development, the international community should help finance the implementation of sound programs. These programs will typically require more resources, sustained over a longer period, than can be mobilized internally. Countries that have demonstrated their willingness to address policy issues should have access to increased, longer-term, and more flexibly offered international aid. To the extent that a country's policy package involves thoroughgoing reform, there are likely to be substantial one-time transition costs to a new and more sustainable policy regime.

The international commitment to the reform program must be seen from the beginning as continuing, something that has been missing in the past. In addition, the sum total of aid to different levels and expenditure categories should reflect, at least in very rough terms, the priorities given to these levels and categories in the national program. In recent years, only 7% of international aid to African education has been used for the support of primary education, as compared with 16% for general secondary education, 33% for vocational/technical education (including teacher training), and 34% for higher education. In terms of expenditure categories, only 11% of aid has been used to support "operational costs", consisting of local salaries, consumable supplies, and instructional materials.

* * *

Why meet the challenge? The expected benefits of education and training

Greater investment in education and training can, at this time in Africa's history, be expected to yield broad economic benefits. These benefits include higher incomes and lower fertility. Assessments of labor market returns to investments in education consistently find rates of return above 10% and sometimes above 20% -- rates that compare favorably with those in most sectors in Africa today. A recent study, undertaken in preparing for this paper, on the development impact of educational investments in 31 African countries over time corroborates the microeconomic findings of education's high returns.

Increased investment in education can also be expected to reduce fertility. In general, there is a strong negative relationship between how much education a woman receives and the number of children she bears during her lifetime. More-educated individuals, in addition to having fewer children, tend to live healthier and longer lives. And numerous studies have shown that parents' education, particularly that of the mother, affects children's survival, as well as their physical and cognitive development.

The benefits of education go far beyond those for incomes and fertility, however. The rapid transition in Africa from colonial status to self-government to participation in the international arena was possible only because African educational systems produced people to replace expatriates at all levels. The nurturing of leaders who can address the increasingly complex tasks of nation-building is a continuing responsibility of African education. In addition, the stock of human capital in Africa will determine whether Africans can harness the universal explosion of scientific and technical knowledge for the region's benefit -- or whether Africa will fall farther and farther behind. Above all, education is a basic right, an end in itself, an intrinsic part of life and development. When all of the benefits of education are considered, the case for revitalization and expansion of schooling and training in Africa is compelling, even in this period of unusual scarcity.

INTRODUCTION

Since their independence, the nations of sub-Saharan Africa have invested heavily in education.^{1/} The achievements in the sector have been impressive both absolutely and in relation to other sectors and other countries at other times. In many African countries, however, enrollments have stagnated recently, and the quality of education has apparently declined.

These reversals have occurred in an environment characterized by unprecedented population growth, mounting fiscal austerity, and tenuous political and administrative institutions. Each of these factors has hurt education in the region, and the ensuing deterioration in educational services has made it more difficult to solve the region's economic and social problems, fueling a cycle of eroding prospects for the people of the region. To break this cycle, there must certainly be value in identifying policies that will renew progress in Africa's education. The role of human skills in development is critical.

The return to investment in human skills depends, nevertheless, on the macroeconomic policy environment. The United Nations and the World Bank have spelled out the essential ingredients of this environment.^{2/} And most African governments have initiated the necessary economic reforms -- with some good results. In 1986 real incomes per capita rose in low-income Africa for the first time in the 1980s. To sustain this growth in personal income, however, there must be a moderation of the region's unprecedented population growth. The World Bank, in a 1986 paper on Population Growth and Policies in Sub-Saharan Africa, summarized the widely accepted elements of population policy for Africa and noted the very hopeful recent trends in government policy. Clearly, the 1980s mark an important transition for Africa's economic and demographic policies in setting the context for productive investment.

Any discussion of policies and priorities for a region as vast and diverse as sub-Saharan Africa naturally runs the risks of overstating commonalities and understating differences. Readers of this paper will fully appreciate the enormous diversity that exists among African countries along several dimensions -- economic, political, institutional, cultural, linguistic, educational, and (its importance should not be underestimated) the extent of a country's own internal diversity. The many averages cited throughout the paper, while they reflect the 39 most populous African countries, apply specifically to none. Individual countries, country blocs, and language groups will thus provide exceptions to all conclusions. In the end, national authorities must decide the policies and priorities for educational investments and tailor those investments to specific conditions, needs, and aspirations. For these reasons, there is no attempt here to prescribe an education policy for the continent -- that would be inappropriate and futile. Instead, the focus is on generalizations -- on addressing trends and issues that, because of their importance in many African countries, assume importance for the whole continent.

This paper -- on investment in education and training -- is the first in a series that the World Bank is preparing to stimulate discussion of sectoral policies for Africa in the 1990s and beyond. It has three main objectives. The first is to identify and describe common problems and issues of educational development in Africa. The second is to provide leaders in each country with comparative data and analytical tools for developing their own policies and priorities. The third is to suggest specific policy directions for consideration by national education authorities and by donors. The key word here is "consideration." This paper will meet its objectives if it helps initiate serious reflection and debate in Africa on future directions for the sector.

PART ONE: THE POLICY CONTEXT

Discussion of policies for African education in the years ahead must occur within the context of the system's history and its external environment. An attempt is made in Part One of the paper to address those aspects of history and environment most pertinent to understanding the current problems and prospects of African education. Chapter 1 chronicles the extraordinary accomplishments of African nations in building up their systems of education and training during the 25 years of the post-independence era. Chapter 2 depicts current demographic and economic trends in the region and assesses the extent to which these trends threaten past educational achievements. The important positive impact of educational investment on economic growth and other social outcomes is also discussed in Chapter 2. Chapter 3 turns to the education sector itself and elaborates the key issues of enrollment stagnation and quality decline.

Chapter 1. THE REMARKABLE PROGRESS OF AFRICAN EDUCATION

Around the time that most countries of sub-Saharan Africa gained independence from colonial rule, this region lagged far behind the rest of the world on nearly every indicator of Western-style educational development. Efforts since then, especially during the 1960s and 1970s, while failing to close the education gap, have been truly dramatic. The record of this period is a tribute to the determination demonstrated by African leaders and the sacrifices endured by African parents in their quest to provide a better standard of living for their children's generation.

1.1 Education prior to independence

African societies have a long and rich history of educational traditions. Indigenous education was practiced by all ethnic and linguistic groups and remains an important transmitter of cultural identity from one generation to the next. It aims to instill in children the attitudes and skills appropriate for male and female social roles, emphasizing the duties and privileges derived from cultural values. Imparted through language and example in the context of the home environment, as well as formal lessons and rituals outside the home, indigenous education responds to the concrete problems of local communities. It prepares political leaders and ordinary farmers, and it engenders a sense of citizenship in the people of the community.

Africa's early Christian heritage represents a second important element of education in the region, with roots extending back long before the colonial period. Especially in Northeastern Africa and the Nile Basin, Christianity has thrived in Africa for over fifteen-hundred years. In about the year 450, the Ethiopian Christian Church, a key example, established a comprehensive system of education that provided an underpinning for Ethiopian cultural, spiritual, literary, scientific and artistic life.

A third major antecedent to the colonial period is the influence of Islam on African education. Arab culture and language were adopted in much of North Africa, while conversion to the Islamic faith occurred also in the Sahelian zone, along the Coast of East Africa, and in much of the Horn of Africa. Both formal and nonformal school systems were established to teach the ethics and theology of Islam, including a small number of elitist centers of excellence such as the ones at Tombouctou in Mali and at Lamu on the East Coast. Designed to impart skills and knowledge within the religious realm, the system emphasizes reading and recitation in Arabic.

The Western colonial period in sub-Saharan Africa began with the arrival of the Portuguese in the fifteenth century and ended only quite recently. Of the African countries covered in this paper, Ethiopia and Liberia alone have been sovereign states for longer than 30 years. All of the other countries achieved sovereign status within the recent and relatively short period between 1957 (Ghana) and 1980 (Zimbabwe). Colonial precedents are still much in evidence in most of Africa, and they sometimes constrain the degree to which governments are free to initiate new policies.

The principal suppliers of Western-style education prior to independence were the Roman Catholic and various Protestant churches, through their African missions, and the colonial governments themselves. The division of administrative and financial responsibilities between the two differed from one colonial regime to the next. The British, for example, were generally more tolerant of religious and local community autonomy than were the French.

The economic changes that the colonial powers set in motion in Africa helped create a demand for Western-style education that, in many areas, seemed nearly insatiable. Education became the vehicle for moving, within one generation, from peasantry and poverty to the topmost ranks of society. This fact of modern-day life escaped few African parents looking for ways to promote a better future for their children.

In their quest for converts and literate African subjects, the missionaries and colonial governments opened up a network of schools in the region. Many of these were of a high standard. Yet the curricula, based for the most part on overseas models, reflected little in the way of African content. The administration of "modern" education systems in Africa was dominated by expatriates, as was teaching beyond the primary level.

Access to education was quite limited, especially in the thinly populated areas of French West Africa. In 1960, the gross primary enrollment ratio in all of sub-Saharan Africa was still only 36%.¹ This was about half the levels then found in Asia (67%) and Latin America (73%). The enrollment ratio was 38% in the Francophone territories (50% in the Belgian colonies and just 31% in the French) and 40% in the Anglophone. Many countries, including The Gambia, Cote d'Ivoire, and Senegal in West Africa and Tanzania and Somalia in East Africa, had over 90% illiteracy at the time of independence.

There were also significant differences in educational access and participation within colonial territories -- between urban and rural populations, males and females, and members of different ethnic or religious groups. Such patterns stemmed from a variety of causes. Different African peoples were regarded and treated differently by colonial administrators; the costs of providing education differed, certainly between urban and rural areas; some population groups were more responsive to educational opportunities than other groups; and most Africans, responding to the incentives imposed by patrilineal customs, preferred education for their sons to education for their daughters. As a result, problems of unequal educational participation frequently transcended colonial boundaries. Participation patterns in northern Nigeria, for example, had less in common with those in the south of the same British territory than with those in the north of neighboring French Cameroon. Such within-country differences and between-country similarities remain evident today.

Transition rates from one educational level to the next were low in 1960, and drop-out rates were high. As a result, enrollment pyramids were typically very narrow at the top. Only 6% of all sub-Saharan enrollments in 1960 were at the secondary level, and tertiary education was virtually non-existent until the very end of the colonial period. The gross enrollment ratio at the secondary level in Africa was 3% in 1960, as compared with 14% in Latin America and 21% in Asia. The ratio at the tertiary level was 1:500, about one-sixtieth those then found in Asia and Latin America. According to

UNESCO figures, at the time of independence there were only 90 African university graduates in all of Ghana, 72 in Sierra Leone, and 29 in Malawi. When Botswana became independent in 1966, 96% of higher-level posts in the country were filled by expatriates.

1.2 Advances in education after 1960

The systems of education inherited by the African nations at the time of independence were altogether inadequate to meet the needs of self-governance and rapid economic growth. From this low starting point, the progress achieved in African education has been remarkable.

Quantitative expansion has been particularly impressive. Between 1960 and 1983, the number of students enrolled in African institutions at all levels quintupled to about 63 million students (Annex Table C.2). Enrollments increased about 9% annually between 1970 and 1980, double the rate in Asia and triple that in Latin America. The substantial expansion of education after independence has allowed the increased participation of some groups who had little or no prior access to formal education.

Primary-school enrollments increased the most in absolute terms, growing from approximately 11.9 million pupils in 1960 to 51.3 million pupils in 1983 (see Table 1.1). The gross primary enrollment ratio rose from 36% to 75% over this period. In only three of the region's 39 countries (Congo, Lesotho, and Mauritius) was the enrollment ratio higher than 80% in 1960; by 1983, 16 countries had achieved this milestone (see Annex Maps 3a and 3b).

[Table 1.1]

In fact, 12 of the 39 countries now have gross primary enrollment ratios equal to or greater than 100% (Annex Table A.7). Enrollment ratios in excess of 100% arise from the definition of the gross enrollment ratio, in which the denominator is a measure of the official school-age population, and the numerator counts all pupils enrolled in school, regardless of age (see footnote 1).

Enrollments at the higher level increased the most in relative terms, especially between 1960 and 1970. This resulted from the emphasis that most African nations were giving higher education in an effort to alleviate manpower shortages and also from the low level of base enrollments. In 1960, there were only about 21,000 university students in Africa (approximately one in 500 of the age group) and a few thousand studying in foreign universities; by 1983, 437,000 (seven per 500) were enrolled in African institutions, and a further 100,000 Africans were studying abroad. The relative increase in tertiary enrollments was particularly dramatic in French-speaking Africa. In the group of 18 Francophone countries, there were 40 times more students enrolled in higher-level institutions in 1983 than in 1960. By way of contrast, in the 16 Anglophone countries, where enrollments were much higher initially, enrollments had increased by only a factor of 15. For every student enrolled in higher education in the Francophone countries in 1960, there were 4 enrolled in the Anglophone countries; by 1983, the ratio was only about 1-to-1.5.

The building of schools and training of teachers undertaken to accommodate the additional students throughout the region were mammoth achievements. Between 1960 and 1983, the number of primary schools in

**Table 1.1 School Enrollments and Enrollment Ratios in
Sub-Saharan Africa, 1960 and 1983**

Level	Year	
	1960	1983
Primary Education		
Enrollments	11.9 million	51.3 million
Gross Enrollment Ratio	36%	75%
Secondary Education		
Enrollments	800 thousand	11.1 million
Gross Enrollment Ratio	3%	20%
Higher Education		
Enrollments	21 thousand	437 thousand
Gross Enrollment Ratio	0.2%	1.4%
Total Enrollments	12.7 million	62.9 million

Note: Based on Annex Table C.2.

sub-Saharan Africa increased from about 73 thousand to roughly 162 thousand, and the number of primary school teachers, from 310 thousand to over 1.3 million.^{2/} Interestingly, the average pupil-teacher ratio remained roughly the same over this period (approximately 39-to-1); on the other hand, the average primary school size increased from 162 pupils in 1960 to 317 in 1983, almost doubling.

The number of teachers employed at the secondary level increased eightfold, going from about 46,000 in 1960 to about 373,000 in 1983. This understates the increase in African teachers, since many expatriate teachers were replaced during this period. At the tertiary level, the number of institutions in sub-Saharan Africa has more than tripled since 1960 and today exceeds 80.

The consequence of this massive educational expansion, which began in some countries in the 1950s and intensified everywhere after independence, has been a substantial deepening of the human capital stock. Using data from countries that conducted censuses around 1980, it is possible to examine the changing educational attainment of successive cohorts of individuals who were of school age at different times over the 30 years beginning in 1950. For the few countries with information, the proportion of males who reached adulthood without having attended school declined from 31% in the early 1950s to 22% in the late 1970s in six Anglophone countries, and from 59% to 42% in four Francophone countries. For the same countries and over the same period, the proportion of males who attended and completed primary school rose from 47% to 58% in the Anglophone countries, and from 16% to 30% in the Francophone. Estimated mean years of schooling for the male population (over age 15) increased from 4.6 to 5.4 years in the Anglophone countries and from 2.0 to 3.4 years in the Francophone.

An alternative to using census data for estimating stocks of education is to "add up" past enrollments. In conjunction with demographic assumptions, this allows estimates to be made, country by country, of the educational attainment of the working age population. Table 1.2 reports estimates of educational stocks produced in this fashion. The estimated average educational attainment of working age individuals (men and women) in the median African country increased from 1.0 years in 1970 to 3.3 years in 1983. The figures in the table underline the wide disparities that remain in this variable, especially between the Sahelian (low-income semi-arid) countries and the rest of Africa.

[Table 1.2]

Table 1.2 also shows how literacy rates have risen since 1960. In the median African country, the percentage of adults reportedly able to read and write has increased by a factor of nearly five. This progress reflects both the growth of formal education and, in many countries, successful programs to promote literacy among adults and young people not attending school. Approximately a quarter of all African countries have launched programs of adult illiteracy eradication.

Table 1.2 Indicators of Educational Progress

	Median estimated number of years of school attended by working-age population		Median literacy rate (percent)	
	1965	1983	1960	Latest available year
<u>Economic status groups</u>				
Low-income semi-arid	0.1	0.9	2	15
Low-income other	0.5	2.9	10	41
Middle-income oil importers	1.3	4.2	19	72
Middle-income oil exporters	0.7	3.6	16	56
<u>Linguistic groups</u>				
Francophone	0.5	2.4	7	40
Anglophone	1.2	3.4	18	58
<u>Sub-Saharan Africa</u>	0.5	3.3	9	42

Note: Based on Annex Tables C.3 and C.4.

Other forms of adult and nonformal education have also been strengthened in the first two decades of independence. Departments and institutes dedicated to the production and study of adult education have emerged in many universities, and nongovernment bodies concerned with functional literacy and income generation in urban and rural areas have proliferated.

In addition to the remarkable quantitative achievements, many other significant changes have occurred in African education over the past quarter century. Especially at the primary level, Africanization of the curriculum has been a widespread accomplishment. In nearly every part of sub-Saharan Africa, texts have been adapted and new texts written so that basic skills are now taught with reference to African customs, the local environment, and the area's own history. Twenty-one of the 39 countries in the region now officially begin instruction in one or more African languages, rather than asking children to use a European language as the medium of instruction from their first day in primary school. These reforms have transformed the African classroom and made it far more conducive to an African child's rapid acquisition of the cognitive competencies stressed in the curriculum.

1.3 Expenditure on education

To appreciate the high degree of commitment of African nations to education, to develop and better understand the significant advances that have occurred in the sector since 1960, it suffices to look at the flow of resources allocated to the sector.

(a) Public domestic expenditure on education

In 1970, the 39 countries of sub-Saharan Africa allocated approximately \$3.8 billion of public domestic expenditure to the education sector. This is a World Bank estimate of total, i.e., capital plus recurrent, expenditure (see Box 1.1), expressed in constant 1983 U.S. dollars.^{3/} By 1975, this figure had reached \$6.3 billion, up 66% over 1970. By 1980, it was nearly \$10.0 billion, up another 58%. Between 1980 and 1983, public expenditure fell somewhat, down approximately \$1.1 billion, to \$8.9 billion in constant 1983 dollars.^{4/} Although data are unavailable for 1984 and 1985, expenditures may have resumed growth subsequent to 1983, when the economic crisis was at its peak.

[Box 1.1]

Given that the use of official exchange rates may give a false picture of levels of expenditure over time and may also distort comparisons of expenditure between regions or countries, it is important to consider an alternative measure of public expenditure on education. Expenditure as a percentage of national income is an especially meaningful indicator of a government's "effort" in the area of education. Figure 1.1 shows public domestic expenditure on education as a percentage of national income in Africa and elsewhere in four specific years between 1970 and 1983. The figure shows that sub-Saharan Africa has been allocating a larger share of total income to education than have the developing countries in general, but still a smaller share than developed countries have managed to do.

[Figure 1.1]

Box 1.1 AGGREGATE PUBLIC DOMESTIC EXPENDITURE ON EDUCATION IN SUB-SAHARAN AFRICA

The discussion of public education expenditure in the text is based on information provided by UNESCO and presented in Annex Tables A.14-A.23. Because, for any given year, expenditure data have been reported for only a subset of countries, the total of public domestic education expenditure for all 39 African countries in that year is not known. For example, for 1980, there is expenditure information available for only 29 of the 39 countries (see Annex Table A.14).

In an attempt to bypass this data limitation, the table in this box reports estimated totals of public education expenditure in 1970, 1975, 1980, and 1983 for the 39 countries as a group. These aggregates were arrived at by taking all countries for which actual data were available for the particular year and estimating, for this subset of countries, the average relationship between expenditure and certain other measures including per capita income and enrollment at each of the three education levels. The estimated relationship was then used to impute expenditure figures for the remaining countries for which actual values were not reported. Finally, these estimated values were added to the sum of reported values to arrive at the aggregate values given in the table.

Public domestic expenditure on education, 1970-1983

	1970	1975	1980	1983
<u>Countries for which ACTUAL data available (see Annex Table A.14)</u>				
Number of countries	27	26	29	28
% of sub-Saharan African population	60%	77%	89%	75%
<u>Estimated expenditure for all 39 sub-Saharan African countries</u> (1983 U.S. dollars, in millions)				
Capital expenditure	\$459	\$1,767	\$1,316	\$865
Recurrent expenditure	\$3,328	\$4,516	\$8,636	\$8,032
Total expenditure	\$3,788	\$6,283	\$9,952	\$8,897
<u>Index values (see graph below)</u>				
Total expenditure	100	168	263	235
Total enrollment	100	148	235	288

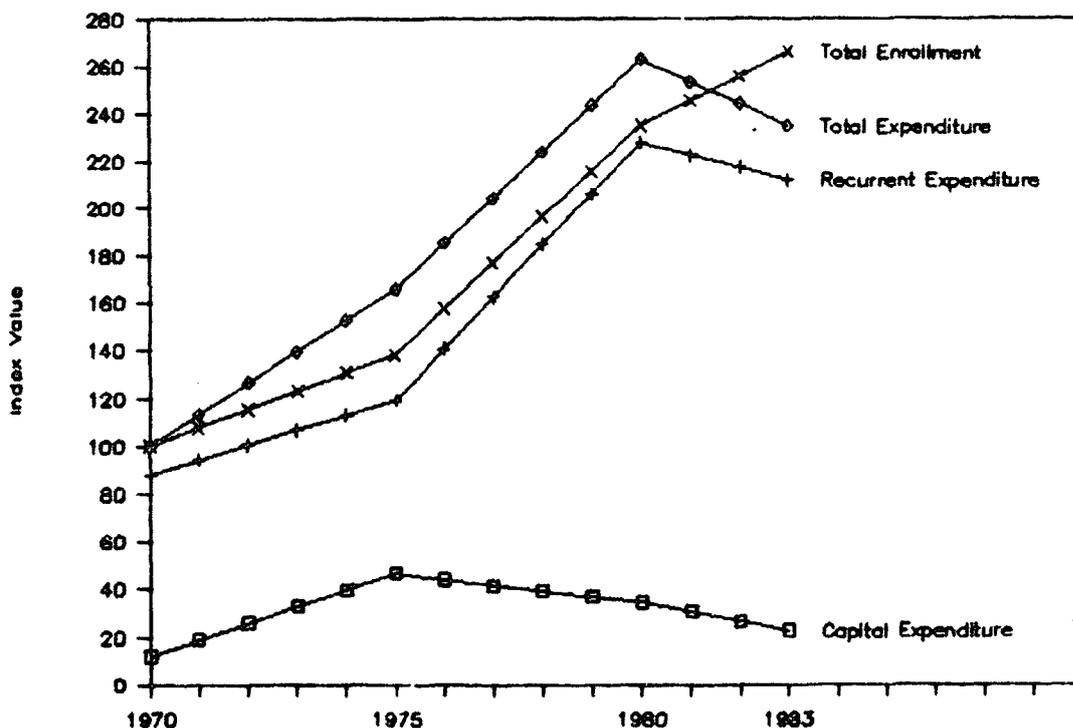
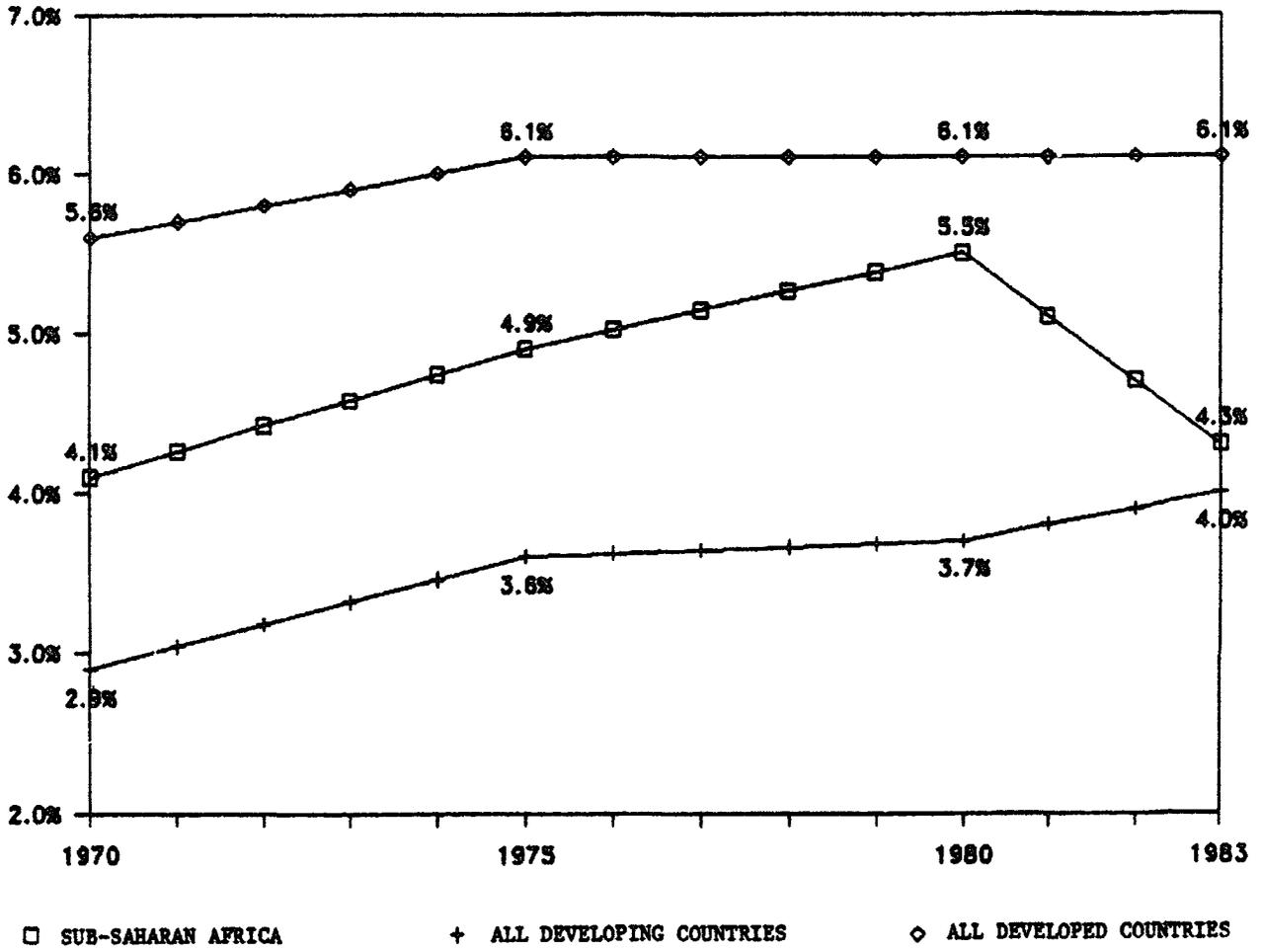


Figure 1.1
Public Educational Expenditure as a Percentage
of National Income, Africa and Elsewhere



Another way to look at public expenditure on education is as a percentage of total public expenditure. On this indicator, the African countries have clearly in the past treated education generously. The median African country allocated 17.6% of the budget to education in 1970, 17.4% in 1975, 18.5% in 1980, and 15.3% in 1983.^{5/} At the lower end of the spectrum, Malawi, Nigeria, and Somalia all spent below 10% of the central government budget on education in 1983. At the upper end, education's share was above 20% in Burkina, Cote d'Ivoire, Mali, Niger, Rwanda, and Togo.

With regard to the distribution of expenditure across levels of education, the recurrent expenditure on primary education was between 43% and 49% of total recurrent expenditure in the median African country over the period 1970 to 1983. The share going to secondary education was between 25% and 31%, and the share going to tertiary, between 13% and 18%. The "non-specified" category, which, as a residual, cannot be taken very seriously but which would include presumably most allocations for central administrative services in ministries of education and for adult education, remained nearly constant at about 10% (Annex Table A.16).

(b) Private spending on education

The focus in the Annex tables on public expenditures reflects the relatively better data available on this, as distinct from other sources of educational finance. Although information on the total of private spending is not available in most countries, it is clear that families and nongovernment organizations bear a significant and growing portion of the financial burden of education in much of Africa. For example, it has been estimated that private expenditure accounted for 14% of total national spending on education between 1975 and 1980 in the Sudan, 23% in Tanzania, 31% in Zimbabwe, 48% in Sierra Leone, and 53% in Ghana.

These figures tend to be larger today than they were in the early years following independence. Government-collected fees (which in official statistics are often counted as part of "public" expenditure on education) have been imposed or increased recently in many African countries. In addition to these fees, there are significant private outlays that are not channeled through government. These difficult-to-quantify flows include most fees paid to private education institutions; the privately borne costs of such items as transportation, school uniforms, textbooks, and supplies; and very important, especially at the primary level, family and community outlays, either in cash or in kind, used for the construction or repair of school buildings in public education. Commitment of student time is, of course, another valuable input to the educational system, but one that this paper does not attempt to account for separately.

During the colonial period, much of Western-style education in Africa was organized and, to a significant extent, financed by missionary groups based overseas, often relying heavily as well on community self-help. In the period after independence, government assumed responsibility for most such education in nearly every African country, Lesotho being a major exception to this rule. During this period, wherever school fees had been charged, often these were reduced or eliminated. More recently, however, in response to growing fiscal and demographic pressures, African leaders have condoned a reversal of this post-independence trend. In the late 1970s and 1980s, students, their families

and communities have been asked to contribute ever larger amounts towards the costs of education. Often, to avoid having to collect school "fees," governments have referred to these subscriptions by another name, such as development fund contributions or activity payments.

(c) Foreign aid flows to African education

Foreign aid also accounts for a significant part of total spending on African education (Annex Tables A.24-A.27). It is estimated that, in the period 1981-83, the total of bilateral, multilateral, and private voluntary organization aid to African education, granted through central government ministries of education (and not through other departments of government, nor directly to individuals) was in the order of \$916 million per year.^{6/} Nearly a quarter of this was in the form of scholarships for African students to study abroad; a significant portion of aid to education (44% of Western bilateral and multilateral aid) was in the form of technical assistance.

African governments received an estimated additional \$394 million of external aid each year to finance project-related training in sectors other than education. In addition, when African students study abroad, indirect costs are incurred by the countries that host them; these have to do with the nonexplicit subsidies that students, including foreign students, receive at most universities. A very rough estimate of the total of such subsidies to African students who were studying abroad between 1980 and 1982 is \$245 million annually.

In conclusion, the total of all categories of external aid to African education and training in the early 1980s was on the order of \$1.6 billion annually. This is a significant amount, nearly \$4 per capita, but there is no evidence to suggest that external aid has increased in recent years to compensate for the decline in African government expenditures. To the contrary, the total of all aid to Africa for all purposes was smaller in 1983 than the 1980-82 average, and smaller in 1984 than in 1983. This paper returns, in Chapter 9, to further discussion of external aid to education in Africa.

Chapter 2. EDUCATION AND THE EXTERNAL ENVIRONMENT: A CYCLE OF DETERIORATING PROSPECTS

The impressive gains recently won in African education are now seriously threatened by a number of circumstances external to the sector, including most importantly: (1) Africa's explosive population growth, which swells the number of potential illiterates on the continent, and (2) recent economic decline, which has necessitated significant cutbacks in public spending. While economic prospects may have brightened somewhat since 1983, and population growth has begun to slow in a handful of countries, it cannot be denied that, for most of sub-Saharan Africa, current economic and demographic realities undermine both the quantitative and qualitative educational advances achieved in the period since independence. Retrogression in education will, in turn, make the solution of these problems more difficult. And so the pattern is repeated, and it is destined to continue until extraordinary efforts are made to interrupt this cycle of deteriorating prospects.

2.1 The demographic challenge

Between 1970 and 1980, while the world's population was growing at an average annual rate of 1.9%, Africa's population grew at 2.9%, one-and-a-half times the world's rate. Between 1980 and the end of the century, Africa's population is projected to grow even faster, at about 3.2% per annum; further declines in growth rates are projected for all other major regions of the world.¹

Africa's rapid population growth creates serious problems for education. In order for the growth of educational places to keep pace with the growth of school-age children, more schools, teachers, books and other inputs are required each year. Moreover, because as populations grow, the number of school-age children increases more rapidly than the number of working adults, the burden of supporting an expanded education system falls on an adult population that is shrinking as a proportion of the overall population. Sub-Saharan Africa today has the youngest population of any region in the world. One in three persons is of primary or secondary school age in Africa (see Figure 2.1), as compared with just one in five persons in Latin America and in Asia, and one in six persons in the industrialized countries.

[Figure 2.1]

It is projected that, by the year 2000, Africa's primary and secondary school-age population is projected will have reached 220 million, which is 70% or 90 million larger than the number in 1984. This represents a massive explosion in the potential demand for educational services and one that is virtually inevitable over the short time horizon. This fact is of fundamental importance. It sharply constrains African planners' options, and its implications color all of the analysis contained in this paper.

[Figure 2.2]

Figure 2.1
SUB-SAHARAN AFRICA POPULATION AGE STRUCTURE, 1984

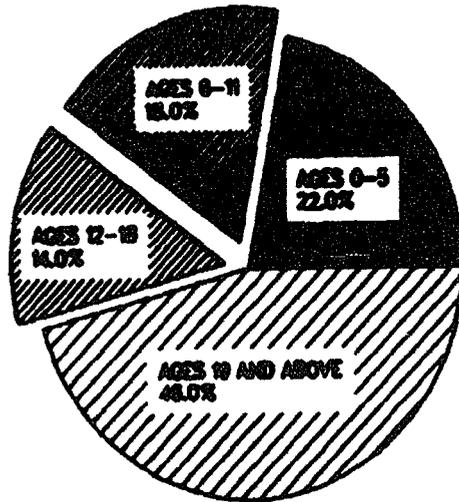
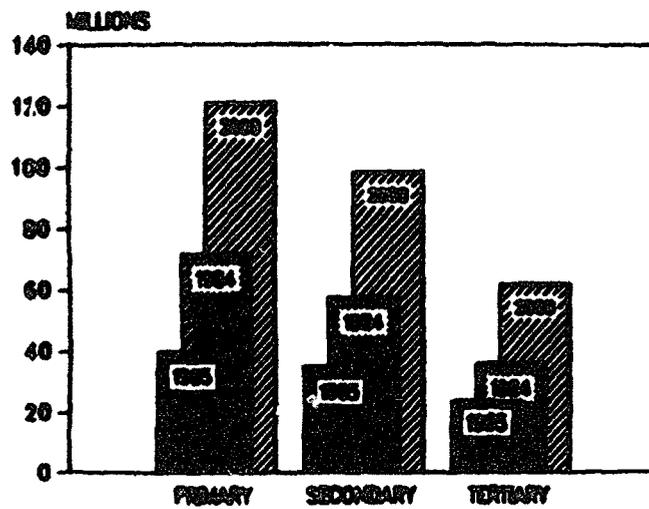


Figure 2.2
GROWTH OF SCHOOL-AGE POPULATIONS, 1965-1984 AND 1984-2000



For example, there were 51.3 million primary and 11.1 million secondary school places in Africa in 1983. These figures would have to reach 90.7 million and 19.7 million, respectively, by the year 2000 just to maintain participation rates at their 1983 levels (see Table 2.1). The goal of universal primary education (UPE), which African education planners at one time hoped could be achieved even by 1980, unfortunately still seems very far away from the perspective of the mid-1980s. For the region to have all primary school-age children enrolled by the year 2000 would require that 131.8 million primary school places be made available, a 157% increase in just 17 years. The 80.5 million additional places required are more than all of the places that exist now after many decades of educational development.

[Table 2.1]

The investment in the construction of new classrooms and the recurrent costs necessary to support such massive expansion in education, while not altogether unreasonable if the achievements of the 1960s and 1970s are simply extrapolated forward, unfortunately do not seem very likely in the context of long-run austerity beginning in the 1970s. Table 2.1 shows that to maintain gross enrollment ratios at their 1983 levels would require the addition of 39.4 million primary and 8.6 million secondary school places in the 17 years between 1983 and the turn of the century. Assuming that per pupil expenditures will remain at their 1983 levels in constant dollar terms (roughly \$50 per primary, and \$250 per secondary school pupil), the recurrent costs of just the first two levels of education would go up by approximately \$4.0 billion, becoming \$9.4 billion by the year 2000. This is already more than the total amount allocated by African governments to all three levels of education and their central administration in 1983.

In addition to meeting the swollen recurrent costs, school buildings and equipment would need to be financed -- both to meet the needs of new students, and to replace (at an estimated 2% per year) outmoded facilities. Assuming very modest capital costs of just \$150 per primary place and \$1,250 per secondary place (this best-practice scenario involves capital costs well below actual average capital costs in Africa today), the required investment in facilities would be another \$1.4 billion annually. The total of recurrent and capital expenditures for primary and secondary education alone would come to nearly \$11 billion annually. This is \$2.1 billion more than the total spent on all aspects of education in 1983. In sum, the demographic tide requires massive efforts just to stay even in terms of enrollment ratios. Table 2.2 summarizes the cost implications at the primary and secondary levels of just staying even with demographic growth.

[Table 2.2]

Ironically, in addition to explosive population growth, much of Africa suffers from another demographic condition -- low population density. The combination of rapid growth and low density may seem strange since, given enough time, the first will eventually eliminate the second. In the meantime, however, low population density often implies high unit costs in education, especially in rural areas, where economies of scale in the provision of education are precluded given present methods for delivering education. At this time, Africa's population density is about 19 people per square kilometer, as compared with a worldwide density of about 36.

Table 2.1 Sub-Saharan Africa Primary and Secondary Populations and Enrollments, Actual (1983) and Projected (2000)

	Primary education			Secondary education		
	1983	2000	% change 1983-2000	1983	2000	% change 1983-2000
School age population						
Actual	68.5	--	--	55.6	--	--
Projected	--	120.9	76%	--	98.6	77%
School enrollment						
Actual	51.3	--	--	11.1	--	--
Projected assuming:						
Gross enrollment ratio same as in 1983	--	90.7	77%	--	19.7	77%
Enrollment ratio 100%, no repetition and no dropout	--	120.9	136%	--	98.6	788%
Enrollment ratio 100%, repetition and dropout same as in 1983	--	131.8	157%	--	105.5	850%

Note: Population and enrollment figures in millions. Based on Annex Tables A.1, A.2, A.7, A.8, A.12, and B.4.

Table 2.2 The Cost Implications of Maintaining 1983's Enrollment Rates through the Year 2000

Level	1983		2000		Increment of Recurrent Expenditures	Required Average Annual Capital Investment
	Enrollments	Recurrent Expenditures	Enrollments	Recurrent Expenditures		
Primary	51.3	2.6	90.7	4.5	1.9	.5
Secondary	11.1	2.8	19.7	4.9	2.1	.9
Total	62.4	5.4	110.4	9.4	4.0	1.4

Note: Enrollments are in millions of students; expenditures are in billions of 1983 dollars.

2.2 Macroeconomic adjustment and fiscal austerity

The economic crisis, initiated with the oil price increases of the 1970s, accelerated after 1980, leaving most African economies in serious disarray. (Oil exporters benefited of course, at least in terms of short-term availability of foreign exchange.) Agriculture, which accounts for the largest share of goods produced (about a third of total production), was hurt by the drought that affected much of the region, by a marked deterioration in terms of trade (declining agricultural prices combined with rising energy prices), and by the continuation of national policies that discriminate against the sector. Moreover, the investment rate in sub-Saharan Africa fell from above 18% of income in the 1970s to below 15% in 1983 and is currently the lowest of any developing region, thus threatening to undermine Africa's long-term productive capacity.

Economic stagnation, combined with rapid population growth, has meant a decline in living standards, a fatal decline for many individuals in those countries worst hit. Overall, income per capita fell nearly 4% annually between 1980 and 1984; it is lower in the region today than it was 20 years ago. The external public and publicly guaranteed debt increased eleven-fold between 1970 and 1984, and debt-service payments more than tripled as a percentage of GNP, from 1.2% to 4.4%. Central government expenditures increased while revenues remained about the same, and fiscal deficits on the continent rose to about 10% of GNP.

Because continuation of the above trends spelled economic disaster, African governments recognized that macroeconomic policy reforms were an absolute necessity. In this regard, they have made substantial progress since 1980, along the general lines prescribed at the U.N. Special Session on Africa in May 1986. Thus many governments have reconsidered their exchange rate policies, instituted wage and salary reforms, and begun to eliminate price distortions that penalized farmers. They have also reduced public spending, including spending on education (Section 1.3).

It is expected that these structural reforms will gradually encourage higher investment and lead to increased consumption levels. What is more, the drought in Africa has recently abated, and there has been an improvement in the region's terms of trade. Low-income Africa registered a growth in per capita income in 1986, for the first time in the 1980s; this performance is expected to be repeated in 1987. In sum, there may be room again for cautious optimism with regard to the economic environment and long-term growth prospects of the region, but this relative optimism should by no means give rise to complacency.

2.3 Investment in education: breaking the cycle of deteriorating prospects?

Extensive experience from Africa and elsewhere provides strong evidence that increased investment in education and training at this stage in Africa's history can be expected to yield very broad economic benefits -- including, of critical importance in the African context, raised incomes and reduced fertility. Although direct evidence for developing areas and especially for sub-Saharan Africa is less extensive and rich than for the developed countries, enough information exists to conclude that the direction of the relationship between education and various indicators of economic

well-being is the same everywhere and that the positive relationship holds true for both formal general education and for training. The evidence suggests, however, that the magnitude of education's impact is somewhat larger in developing countries, because of education's relative scarcity there.

Education cannot, in and of itself, bring about economic growth, but the evidence indicates it to be a vital factor. It provides the fertile ground without which other development initiatives will not take root. Education acts as an "accelerator" in the growth process, working as an essential complement to other factors. Thus, for example, although education is associated with increases in agricultural productivity, its impact is found to be much greater within the context of an already modernizing environment. Likewise, investments in the provision of family planning services have been shown to have higher impact if the women using the service (or potentially using it) are better educated.

The economic rationale for enhanced activity in African education, elaborated below, may be complemented with several broader and politically compelling explanations of why African countries have invested so heavily in education since independence and with arguments for why they should endeavor to protect and expand their commitment to the sector in the future. First, the essence of sovereignty is the control of nationals over the destiny of their countries. The transition from colonial dependence to self-government and to active independent participation in the international arena was possible only because African educational systems were able to produce indigenous personnel at all levels to replace expatriate rule. The qualitative nurturing and quantitative regeneration of that leadership elite, so that it can address the increasingly complex challenges of nation building in the future, is a continuing requirement for the effective maintenance of sovereignty and, as such, a fundamental responsibility of African systems of education.

Second, the rate and extent of the growth of the human capital stock in African countries, attained through the improvement and expansion of education at all levels, will ultimately determine whether the universal explosion of scientific and technical knowledge can be harnessed for the benefit of the region, or whether Africa will be left behind and denied the enormous benefits accruing to technological change. Finally, education is everywhere a "merit good," a basic human right, an end in itself; indeed, education is an intrinsic element of the development process. It is unthinkable that African governments, and their international partners, would permit a decline in the fraction of the population having access to education's many benefits. And yet that is the spectre that now menaces many African countries.

The economic evidence indicating large payoffs to education is of three principal sorts, each providing corroboration for the others. The first two rely on individual-level data; the last consists of macroeconomic evidence. The first one examines the relation between an individual's education level and his or her productivity in the labor market as a wage employee or self-employed worker. The second, also at the individual or household level, links the education of individuals to important outcomes of household behavior such as fertility rates or child survival. Finally, there is macroeconomic evidence, which relates the growth rates of national economies to prior investments in education, controlling for other factors presumed to influence growth. The macroeconomic evidence is an important complement to the individual-level data,

particularly the data on education and earnings, in that it provides evidence to assess the view, occasionally advanced, that education improves the lot of individuals, by reallocating societal resources, but does not increase the overall flow of resources. The remaining pages of this chapter summarize evidence of all three types, including an analysis conducted in conjunction with the preparation of this paper that addresses the macroeconomic issues.

(a) Education and labor productivity

Economists have assessed the economic value of education by observing differences in the earnings of workers with different levels of education, having controlled for other differences that exist between the groups, and then comparing the adjusted earnings differences with the costs of the education. The indicator that summarizes the information on costs and benefits is the social rate of return.²¹ A recent survey of cost-benefit studies conducted in 16 African countries suggests average social rates of return to investment in African education of the following magnitudes: primary 26%, secondary 17%, and tertiary 13%.

Although these rates of return certainly seem attractive relative to many other forms of investment, there are important caveats. These studies may overstate the actual, current rates of return to education in Africa, because the data on which many of the estimates are based are out-of-date -- the cross-sectional earnings data used in these studies are, on average, 10 years old, and there has been considerable educational expansion over the decade since then. A more recent study from Kenya (see Box 2.1) does indicate that rates of return have fallen off somewhat and that the substantial difference (nine percentage points) observed in the past between primary and secondary education may have completely disappeared, which would reflect the declining relative scarcity value of primary education. Even so, the Kenya study confirms that rates of return to both levels of education, after adjusting for other factors, remain substantial (around 12%).

[Box 2.1]

The relatively lower rate of return to education at the tertiary level should not be interpreted to mean that high-level skills are not important in Africa. What the findings reflect most of all are the extremely high unit costs of tertiary education. In addition, most studies ascribe all costs at this level to teaching and none to other outputs of the tertiary system, such as research. If the costs of tertiary education were to be prorated, and the value of the research and other outputs of the education assessed (including some that may accrue to society in general, and not narrowly to those who receive the education), then the rate of return to tertiary education would certainly appear higher.

Many of the early rate of return studies relied on earnings data observed for workers employed in the formal wage sector. To the extent that the percentage of primary school leavers able to find employment in the formal sector has declined recently (relative to the percentage employed among uneducated people), and to the extent that earnings in the formal sector are "protected" and thus remain higher than elsewhere in the economy, the estimated rates of return might have been inflated. The perceived validity of such benefit-cost studies has been considerably enhanced, therefore, by a number of recent studies of education's impact, including some done in Africa, that are

**Box 2.1 RELATIVE RATES OF RETURN TO PRIMARY AND SECONDARY EDUCATION
IN KENYA**

Perhaps the most influential fact to emerge from twenty-five years of rate of return studies in developing countries concerns the relative rates of return to primary and secondary schooling. Most studies, including most of those conducted in Africa, have reported substantially higher rates of return at the primary level. The implication generally drawn from this ranking is that top priority should be given to primary education as a form of investment in human resources. Recent studies from Kenya throw some new light on this issue.

Returns to education are measured by the gaps in wages, and presumably productivity, between workers with different levels of education. It is often assumed that the average wage of labor with a given level of education measures the wage received by the marginal (most recently recruited) worker with that level of schooling. However, the average may not always indicate the marginal wage.

Due to rapid expansion in the educational system, the labor market conditions faced by those just leaving school are very different from the conditions faced by earlier cohorts when primary school leavers were in short supply. For those entering the labor market a generation ago, a primary school certificate was a passport to a white-collar job, and typically those who obtained jobs at that time remain in them today. But, due to the expansion of the educational system, today's primary school completer is fortunate to get even a menial blue-collar job, and his chance of obtaining a white-collar position is virtually nil.

The process by which successive cohorts of workers at a particular educational level enter lower skilled jobs is called "filtering down." A recent study took this process into account in calculating average and marginal rates of return in Kenya. The study found that the rate of return to primary schooling is highly sensitive to the distinction between average and marginal rates of return, whereas the rate of return to secondary schooling is not. The average return to primary schooling, as conventionally measured, is 17%; the marginal return is 12%. The marginal return is lower for two reasons. At the primary level, there is both substantial filtering down and large differences in wages by occupation, whereas for the uneducated there is less scope for filtering down and wage differences by occupation are small.

The return to secondary education, by contrast, is not affected by the equivalent adjustment: the average and marginal rates of return are both 13%. Because the degree of filtering down of primary and secondary completers is similar, the differential in earnings between the two groups is little affected. In Kenya, moving from the average to the marginal concept erases the usually reported difference in rates of return: at the margin, the rate of return to secondary education (13%) about equals the rate of return to primary education (12%).

based on information about self-employed workers. Since the self-employed do not receive "wages" as such, many of these studies have sought to estimate education's value directly by looking at the value of what more educated individuals produce. Most of the research to date has focused on agriculture and, within agriculture, especially on crop production.

A recent review of 18 studies of farmer education and farm productivity in 13 countries concluded that farmers who have completed four years of education produce, on average, about 8% more farm output than farmers who have not gone to school, controlling for differences in the use of physical inputs. Moreover, the percentage increase in output associated with four years of education is found to be about 10% in "modernizing" environments (indicated by such factors as the availability of new crop varieties and reasonable incentives); in more traditional environments, where technology and opportunity are changing only slowly, there is little payoff to education. Only one African country, Kenya, was included among the 13 countries in the review, but the results there were consistent with the general findings. A recent study of this kind based on data from South Asia identify numeracy and literacy among the critical cognitive skills through which education's effect on farmer productivity is mediated.

One may conclude from all of the available evidence that rates of return to investment at all levels of education in Africa today compare favorably with realized rates in most other sectors, including some sectors for which the World Bank and other development agencies have been providing relatively large amounts of money in recent years. The Bank's own experience with project lending reinforces what researchers have concluded regarding the value of education. The probability that a development project in any sector will be successful has been observed to increase as a function of the human capacity available to plan, implement, and benefit from it. The absence of important skills, particularly in the area of project management, is often cited as the primary reason for the failure of particular projects to meet their objectives. More generally, the educational level of the entire population involved in a project -- farmers who would be using a new package of inputs made available under a project, or women who would be visiting a new health or family planning clinic -- is often a key element in determining whether or not the project has a significant impact. Investment in education, in sum, increases the return to investments in other sectors.

There are other ways that education may enhance worker productivity. It has been shown, for example, that education increases the propensity of individuals to migrate. This will increase economic growth to the extent that individuals move, as they will naturally seek to do, from employment in lower productivity sectors to employment in higher ones. Moreover, employed urban migrants typically remit a part of their earnings to their families back home, and this resource flow has been shown to result in increased investment in Africa's rural areas.

There is also evidence to suggest that education can, under certain conditions, be expected to fulfill equity goals. Since it was first introduced in Africa, Western-style education has been a vehicle by which able children of poor families have managed to move to higher levels in society's occupational and income structure. As access increases, the additional expenditures on education will flow increasingly to the disadvantaged elements of society, to the poor, those in rural areas, and girls. The study referred to in Box 2.1

above with reference to Kenya compares the experience in that country, where secondary education was allowed to expand rapidly during the 1970s as a function of demand, with the experience of Tanzania, where the expansion of secondary education was relatively constrained. Although both Kenya and Tanzania expressed concern over the widely dispersed wage structures that existed, Kenya's policy resulted in substantially greater compression in the distribution of earnings over the period than occurred in Tanzania. In addition, the larger size of the secondary system has meant greater access for the children of the poor and uneducated in Kenya than in Tanzania.

Education yields the recipients other important benefits that are not (immediately) reflected in the form of increased earnings or a more equal distribution of earnings. These benefits have to do with fertility, health, and individual fulfillment.

(b) Lowered fertility and other nonmarket benefits of education

In general, there is a strong negative relationship between how much education a woman receives and the number of children she gives birth to during her lifetime. Although in very low-income areas, fertility may, because of education's impact on women's health and fecundity, actually increase with the first few years of schooling given to females, nevertheless, research on the determinants of family size in Africa and elsewhere indicates convincingly that raising the educational attainment of women results ultimately in fertility reduction. This longer-term behavioral change occurs through education's direct effects on family formation decisions and through its indirect effects on child survival and women's employment opportunities.

From the household perspective it is desirable that, through education, women be given the power to control the number and spacing of the children they bring into the world. Moreover, in light of the economic problems associated with Africa's historically unprecedented population growth rate, the social benefits of education's impact on fertility-related behavior can be expected to be high.

In addition to having fewer children, more-educated individuals are found to live healthier and longer lives. One recent multi-nation study demonstrated that a one-percent difference in the national literacy rate is associated with a two-year gain in life expectancy, controlling for per capita income and food energy consumption.

Parents' education, particularly mothers', has been shown to affect the physical and cognitive development of children. This occurs, in part, through education's effect on family income and, in part, through its effects on parents' knowledge of and use of good health and nutritional practices. Also, intellectual skills acquired through one's own education tend to "rub off" on one's children. Studies have shown that children of more educated parents are more likely to be enrolled in school, and once enrolled, are more successful in school and continue higher up the educational ladder.

There is, following from education's effects on nutrition and health, a consistent and strongly positive relationship between parental education and child survival. A review of research in this area concludes that the addition

of one year of mother's schooling reduces child mortality by 9 deaths per 1,000 live births. Box 2.2 summarizes interesting new research findings from Africa on the impact of maternal education on child survival.

[Box 2.2]

(c) Education and economic growth: macroeconomic evidence

Development economists concerned with the role of human resource investments in determining economic growth have found microeconomic evidence of the sort just discussed to be strongly suggestive of education's importance. Yet there remain important concerns. Perhaps education's high rates of return are accounted for, indirectly, by reductions in the earnings of the less well educated. Or, conversely, to the extent that the better-educated enhance the productivity of those around them (through their entrepreneurial activities or technical contributions, for example), measurement of income differentials by education level may understate education's impact. For these reasons, macroeconomic evidence on education and economic growth becomes an important complement to the extensive microeconomic literature.

Macroeconomic analyses attempt to explain differences in growth rates (and other development outcomes) across countries in terms of differences, among other things, in their patterns of investment in education. The World Bank's 1980 World Development Report undertook a major analysis of this sort and concluded the following: (i) increases in literacy contribute both to increased investment and (given the level of investment) to increases in output per worker; (ii) literacy, as well as nutrition and income, affects life expectancy; and (iii) variations in life expectancy, literacy, income and the strength of family planning programs explain between them most of the variation in fertility rates across countries.

While the World Development Report's findings on the development impact of educational investments are quite clear, an important caveat, for the purposes of this paper, is that the analysis was undertaken on a sample of all developing countries, and somewhat different results might pertain to Africa. More recent analyses suggest, however, that levels of investment in education are, if anything, more important in explaining growth rate differences among African countries. Box 2.3 summarizes the results of an analysis, undertaken in conjunction with the preparation of this paper, of the role of education in contributing to the growth of 31 African countries over several decades. The analysis concludes, in short, that investments made in education have contributed significantly to growth in GDP; indeed, perhaps 30% of GDP growth has resulted from educational investments. The aggregate evidence thus corroborates the microeconomic findings of education's high returns.

[Box 2.3]

* * *

Economic and demographic pressures will, clearly, constrain the capacity of societies -- and, even more, of governments -- to invest as fully as would be desirable in the education levels of their future populations. Over a period of time, however, governmental policy reform and individual responses to reform, combined with development assistance from abroad, will create an environment in which sustained growth can resume. Indeed, economic

Box 2.2 EDUCATION AND MORTALITY DECLINE: RESEARCH FROM NIGERIA, GHANA AND SUDAN

A number of survey and census analyses have reflected an inverse relationship between a child's chances of survival and the mother's level of education. Data from the 1960 Census of Ghana, for example, reveal that the rate of child mortality is almost twice as high for mothers with no education as for mothers with elementary education, and nearly four times higher for mothers with no education than for those with secondary schooling. The patterns are much the same for children in urban and rural areas.

A more comprehensive study was conducted in Nigeria as part of the 1973 Changing African Family Project Survey. One component of this study comprised a probability sample of 6,606 Yoruba women, between the ages of 15 and 59, in the city of Ibadan. The second component consisted of a probability sample of 1,499 Yoruba women, over age 17, living in southwestern Nigeria. Analysis of these data allowed for an examination of rural-urban differences, which serve as a reasonable proxy for differences in access to modern health services. The study considered child survival in relation to medical services at childbirth, their practice of birth control, and family income as measured by father's occupation. The analysis concluded that the single most important influence on child survival is the level of mother's education. In Ibadan, the child mortality index for women with some primary schooling was 68% of that recorded for women with no schooling, and the index for women with more than primary schooling was 39% of that for women with no schooling. In southwestern Nigeria, the figures were almost the same, 68% and 41%, respectively.

While father's education was also found to be significant, it was less important in explaining differential rates of child mortality than mother's education. Controlling for education, family income was of little importance. Although child mortality was higher in polygamous than in monogamous homes, the effect of a mother's education to the secondary level was at least a 50% reduction in mortality in both polygamous and monogamous homes. Once other factors were controlled for, child survival was found to be higher among parents who practiced birth control, which might be explained by the greater care accorded children in smaller families.

Results in the Sudan from the same Changing African Family Project Survey confirmed the findings on the importance of mother's education to child survival.

Box 2.3 EDUCATION AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

Between 1965 and the early 1980s, Africa invested heavily in education. Growth of primary school enrolments, which rose from 12 million in 1960 to over 50 million in 1983, is one measure of this investment. The average cost of investment in education in sub-Saharan Africa in recent years has been between 4% and 5% of national income, plus direct parental contributions and the potential earnings foregone by students while they attend school.

In order to guide future allocations to the education sector, it is important to evaluate the extent to which African governments' past investments in education have contributed to recent economic growth. Such an analysis was undertaken, using data appearing in the Statistical Annex to this paper and other World Bank sources. The analysis utilized a "production function" that relates the GDP of each country in each time period (5 time intervals between 1965 and 1983 were used) to a number of factors potentially important in determining GDP. These included: size of the working age population; land area under cultivation; available physical capital stock; and available human capital stock, measured by the number of years of secondary education attended by members of the working age population. A measure of the number of years of primary education attendance was also available, but since the two education variables are highly collinear, one was dropped from the analysis.

These data permitted use of standard econometric methods to estimate the parameters of the production function that relates GDP to the availability of the determining variables. Specifically, a Cobb-Douglas production function was estimated through examination of how changes in input availability resulted in changes in GDP. With an estimated production function, and knowledge about growth in the availability of the input factors, it is possible to account for the growth in overall GDP by decomposing it into components that reflect the rate of growth of each input's availability and the relative importance of that input for determining output, as assessed from the production function.

The table below reports the results of this analysis. The first column of the table lists and defines the variables used in the analysis; the second indicates their growth rate over the period 1965-1983. For example, for the 31 countries included in the analysis, GDP grew at an average rate of 4.3% per year over this period and the size of the working age population grew at a rate of 2.5% per year, so that the growth of GDP per member of the working age population was, on average, about 1.8% per year. The column showing per worker growth rates indicates that the amount of land per worker grew more slowly than GDP per worker, but that physical capital and, particularly, human capital stocks grew much more rapidly.

The final two columns show how these input growth rates accounted for the 1.8% growth rate of GDP per worker. Increases in the stock of human capital accounted for 0.55 of the 1.8 percentage points, or 31% of total GDP growth. This is an impressive fraction, indeed, and clearly demonstrates the

Box 2.3 (continued)

Importance of investment in education in explaining GDP growth in Africa. The most nearly analogous figure from Edward Denison's work on economic growth in the United States between 1929 and 1976 is 26%. Growth in availability of physical capital accounted for 71% of the total growth. A "residual" of unaccounted-for growth was actually negative in this analysis, resulting in a decrease of 0.1 percentage points per annum in the level of growth that would have been expected on the basis of growth in the measured inputs. This residual (often interpreted as technical and institutional improvement) is positive in studies undertaken with data from the United States and other industrialized countries and often accounts for a substantial fraction of total growth. That it has been negative over this period in Africa may be consistent with impressionistic accounts of recent sharp technological and institutional deterioration, and is disturbing.

Contributors to GDP growth in 31 countries of sub-Saharan Africa, 1965-83

Variable	Growth rate (% per year)		Contribution to 1.8% growth rate of GDP per member of working age population	
	Absolute	Per member of working age population	Percentage points	Percent of total
GDP	4.3	1.8	-	-
Labor (size of working age population)	2.5	-	-	-
Physical capital stock	7.8	5.3	1.25	69%
Land (area under cultivation)	3.6	1.1	0.09	5%
Human capital (years of secondary education in working age population)	18.3	15.8	0.55	31%
Residual	-	-	-0.09	-5%

statistics emerging in the past 18 months have reflected a return to growth. To take full advantage of an improving economic policy environment, sustained infrastructural investments must be made, both public and private. The evidence is powerful that education is a key area for such investment. African governments and peoples have successfully implemented massive educational investments, and evaluation of the consequences shows the returns to have been high. We come, then, to the first central recommendation of this report:

Recommendation 1. On grounds of unusually favorable economic returns relative to costs, as well as implementation feasibility, education is prominent among the sectors in Africa where greater effort is essential for engendering long-term development. Most African countries should aim to increase total (public plus private) education expenditures from their recent levels. Government expenditure, currently averaging between 4% and 5% of national income in the region, should in most countries be gradually increased, particularly in those countries now dedicating significantly less than this proportion of public resources to the sector or in which attainment on key indicators of educational development is lagging far behind regional averages. Such increases in public spending are warranted, however, only in conjunction with efforts at all levels to enhance education's internal efficiency and financial viability. The broad array of measures appropriate for these objectives will typically include increased non-government contribution to, and provision of, educational services, thereby raising private resources dedicated to the sector at least in proportion to the increase in public resources.

Chapter 3. MAJOR PROBLEMS: ENROLLMENT STAGNATION AND QUALITY DECLINE

Although African nations have made enormous progress in education as described in Chapter 1, much remains to be done. Africa still lags behind other developing regions on most indicators of educational development. Moreover, the external factors described in Chapter 2 provide an inhospitable environment for eliminating the education and training gap.

Indeed, because of the unenviable combination of rapid population growth and economic stagnation, the gap between sub-Saharan Africa and the rest of the world appears to be widening at the present time; certainly it is no longer closing as in recent decades. Unless steps are taken to address the serious problems in education, what was a gap will in time become a gulf. Given the vital links discussed at the end of Chapter 2 between education and a people's prospects for economic growth and development in the future, this cannot be allowed to happen.

This chapter describes the alarming state of education in Africa along the two principal dimensions of educational output, quantity and quality. On the quantitative side, school enrollments have fallen as a proportion of school-age populations in many African countries; absolute declines actually have occurred in a few. Although adult education for literacy (to the extent that it provides a second chance for those who miss the opportunity to enroll in the formal school system) can often be justified on equity grounds, it should be seen primarily as a stopgap solution. For the longer run, the educational goal should remain universal primary enrollment, which ultimately obviates the need for adult education of this kind.

With respect to the qualitative dimension of educational output, although there is less "hard" evidence that the performance in Africa is unsatisfactory and that it has declined over the recent period, the limited evidence points convincingly, nonetheless, to these conclusions.

3.1 Enrollment stagnation

Between 1960 and 1970, total enrollments in sub-Saharan Africa grew at an average annual rate of 6.5%. Between 1970 and 1980, this rate rose to 8.9%. During the first three years of the 1980s, however, the rate of increase plummeted to 4.2%.¹

Although enrollment increases declined at all levels of education, the drop was most pronounced at the first level, where the rate fell from 8.4% (approximately 2.9 million additional pupils each year) between 1970 and 1980, to 2.9% (approximately 1.4 million additional pupils each year) between 1980 and 1983. Given that the population of primary school-age children is now increasing at an average annual rate of 3.3%, a 2.9% increase in enrollments will not even keep pace. This section begins with an analysis of the problem of stagnating school enrollments, then turns to an account of the role of nonformal literacy and other adult education programs as a partial (at best) substitute for enrollment expansion, and ends with a discussion of the equity implications of the current enrollment trends.

(a) School enrollments

In half (19) of the 39 countries, the present growth rate of the school-age population exceeds that of primary school enrollments. In these countries, unless efficiency is much enhanced, gross enrollment ratios must inevitably fall. For the region as a whole, if the growth in primary enrollments continues into the future at a rate below 3%, by the year 2000 the gross enrollment ratio will have fallen back below 70%, the level of the late 1970s.

While absolute enrollments continue to rise in most countries, this is no longer the case in all countries. Between 1980 and 1983, first-level enrollments actually fell in four countries -- Angola, Mozambique, Somalia, and Togo. Less complete and reliable data for the more recent period suggest that primary enrollments have fallen in Benin, in some states of Nigeria, and in several of the least advantaged parts of the Sahelian countries. Post-primary enrollments also declined between 1980 and 1983 in several countries, including four (Cote d'Ivoire, Ghana, Senegal, and Swaziland) where secondary or tertiary enrollments declined even though primary enrollments continued to increase at close to or better than pre-1980 rates.

On the demand side, enrollment declines reflect the current economic situation in Africa. Children who might have attended school in better times are kept out or pulled out because they are needed to work at home or, in very dire situations such as those that accompanied the recent drought, because their families have been forced to migrate. Also, family incomes have fallen at the very time that many countries have introduced or raised school-related fees. Finally, the private benefits of education, especially inferior quality education, may have fallen during the recent period of economic stagnation; educational qualifications for many jobs have risen as a function of the rapid expansion of graduates. Until issues of school quality are addressed and economic recovery is well under way, the demand for schooling in Africa will remain weaker than in the past, when it was extraordinarily strong.

To some extent, too, the deceleration in the expansion of education in much of Africa is a natural outgrowth of past quantitative achievements in the sector. As described in Chapter 1, there was tremendous progress in the early post-independence years, and proportionate enrollments in some African countries are already close to world standards, especially at the primary level. The gross primary enrollment ratio for the 39 sub-Saharan countries taken as a whole was 75% in 1983, and in 16 of the 39 countries the enrollment ratio exceeded 85%. This level of participation was reached in Latin America and Asia only quite recently (in the early 1960s).

In general, given a country's present enrollment level, the rate of enrollment growth is closely related to that country's income per capita. Although this relationship holds in general terms, the country with the fastest growing primary education sector in recent years is Burundi, defined as a "low income" country under the World Bank's system of classifying country economies; Burundi's GN \bar{r} per capita in 1984 was only \$220. The country with the most impressive recent gains across all three educational levels is Zimbabwe. First-level enrollments in this country grew at nearly 15% annually between 1980 and 1983, second-level enrollments at 54%, and third-level enrollments at 23%. Zimbabwe's efforts stand out as a notable counter-example in contrast with the general regional trend toward enrollment stagnation (see Box 3.1). It

would appear that, over and above the ability to pay, commitment to the sector is an important factor in determining a country's rate of educational expansion.

[Box 3.1]

(b) Adult literacy and training

Falling enrollment ratios must result eventually in adult populations less "schooled" and, as a consequence, even less productive than those living and working in Africa today. Even prior to the current fiscal problems, at the beginning of the 1970s, widespread concerns about educational budgets and about patterns of inequality in the formal education system led to an appeal for "nonformal" education for adult literacy and other purposes. Although data are not available concerning the numbers involved in these programs and the extent to which they have grown or contracted, adult programs are important in a number of countries.

By the late 1970s, adult education and training activities included, in most African countries, not only literacy teaching but also some or all of the following: out-of-school training for the informal sector; skill acquisition and income generation for women; the training of trainers for health, nutrition, and agriculture; and a variety of activities designed to provide equivalency to the several levels of the formal education system. As nonformal education has developed in Africa, it is characterized by the following main features: It serves predominantly young adults, many of whom are of the same age as their counterparts in the formal schools; much of the activity is organized locally and takes place with little or no direct subvention and control from the state beyond some minimal registration and supervision; the young recipients (or their families) often pay for courses that are, in some sense, equivalent to those offered in the schools or in formal industrial training; even those who pay for instruction are typically drawn from the poorer elements of rural and urban society; they are often obliged to combine their education or training with work; many of the courses taught, especially those organized through non-governmental organizations, have been negotiated with the participants or their representatives and, to this extent, reflect the priority needs of the community.

Many of these characteristics of nonformal education programs are innovative and likely efficiency inducers. Some are typically absent from and could, with appropriate modification, be emulated in the formal education system. The possibilities for change with respect to all elements of the education system will be considered in the discussion of policy options in Part Two of the paper.

The presence and recent growth of nonformal education programs raise three major questions for African governments. First, do the present equivalency programs that offer education and skills outside the formal sector point to ways that would dramatically open up, to a wider public, many of the currently under-utilized institutions of the ministries of education and labor? Second, are there ways in which the concerns of African governments about the vocational preparation of young people for informal sector employment can be met through existing low-cost, out-of-school programs rather than by way of newly created national schemes for vocational study within schools? And third, to what extent, if any, can the existing nonformal education structures

Box 3.1 THE STORY OF ZIMBABWE

While primary and secondary enrollment rates have fallen in many sub-Saharan African countries since 1980, enrollment rates have increased dramatically in Zimbabwe. That year marked the beginning of majority rule in Zimbabwe, 15 years after a white minority regime had unilaterally declared independence (UDI) in what was then called Rhodesia.

Rhodesian society -- including its educational system -- had been structured basically along lines of racial inequality. Separate "European" and "African" education departments led to restricted provision and lower quality of education for blacks relative to whites. Public per pupil expenditures were 12 times greater in the "European" system than in the "African" system at the primary level, and nearly three times greater at the secondary school level. In 1979, however, in response to the intensifying war of liberation, the coalition government merged the two education departments and began the process of racial integration of schools. Although these reforms increased black access to education, enrollments continued to be restricted, especially at the secondary and higher education levels.

After independence in 1980, the new government began to redress the inequality inherited from the colonial and UDI periods. Education reform was based on the premise that education, in addition to contributing to a nation's economic growth and development, was also a basic human right. Education was viewed as an effective vehicle for promoting many of Zimbabwe's goals, including the development of nonracist attitudes, a new national identity, and loyalty to the state. The government gave top priority to reopening and reconstructing schools that had been closed during the war (nearly one-third of all primary and secondary schools in rural areas) and to the expansion of education at all levels, with particular emphasis given to secondary education.

Parents and local communities lent their support to the expansion effort by contributing fees and their labor for the construction and rehabilitation of schools. This private support stemmed from the belief that education is the key to an individual's obtaining a job in the modern sector of the economy and improving one's standard of living.

Between 1979 and 1985, primary enrollments in Zimbabwe increased about 160%, and secondary enrollments about 650%. The gross primary enrollment ratio now exceeds 100%, and given the low reported rate of pupil repetition (1%, see Annex Table A.12), it seems safe to conclude that Zimbabwe has achieved the elusive goal of universal primary education. The secondary enrollment ratio has shot up also, from below 10% before independence, to above 40% today. While enrollment increases have been achieved at some cost -- in terms of increased expenditures and consequent constraint in macroeconomic flexibility -- they, nonetheless, clearly represent remarkable achievements.

compensate for slowdowns in expansion of school enrollments? This paper returns to these questions at appropriate points in the chapters that follow. The last question, however, having to do with complementarities between the formal and nonformal education systems deserves some brief comment at this point.

Unlike primary, general secondary, vocational, and university education, adult literacy education is not a regular preoccupation of the ministry of education in most African countries. Usually, it commands attention on an ad hoc basis for the purposes of a particular campaign or series of campaigns. When this happens, the tendency has been for the national literacy coordinating committee to make use of many of the mechanisms that have routinely been associated with other forms of adult and nonformal education -- teachers receiving token honoraria, students working during vacations, school buildings commandeered for use in the evenings. Part and parcel of most successful adult literacy campaigns has been a powerful sense of the commitment of unpaid or modestly paid volunteers. While such relatively low-cost modalities are much in evidence in the first months or years of the campaign, the process of institutionalizing these efforts continues to be a challenge; in the medium to long term, reliance on volunteers and a campaign spirit probably cannot be sustained.

Moreover, the accomplishments of the successful campaigns in, say, Ethiopia and Tanzania, could rapidly become diluted if these countries' primary school systems cannot attract and serve the ever-larger cohorts of children during the 1980s and 1990s. In countries where the primary system fails to meet this challenge, the call for universal literacy, if issued at all, can never be met in a single campaign. In this environment, the campaign would have to be a perennial event, continued with additional expense and effort till such time as the birth rate stabilizes. Unless the problem of low school enrollment ratios in the region is vigorously attacked, the pool of young adult illiterates will be refilled as rapidly as illiteracy eradication campaigns can deplete it.

In conclusion, adult and child literacy (and illiteracy) are thus intimately connected. Adult literacy campaigns have played an important mobilizing role for universal education in several countries, and more general programs of adult or community education are vital to the maintenance of new schooling traditions in parts of Africa. Single campaigns of adult literacy or UPE will both prove to be poor investments unless they are consolidated by productive opportunities to put new skills to use. Lifelong education opportunities are essential for providing individuals with the information and skills needed to enable them to adapt to changing economic circumstances. The issues relating to vocational education, training, and the learning of occupation-specific skills will be discussed as part of Chapter 5.

(c) Expansion and equity

A critical issue related to the current enrollment stagnation in sub-Saharan Africa is what this implies for equity. A great virtue of educational investments, properly designed, is their potential for reducing inequities in enrollments. Conversely, the recent stagnation of enrollments seriously undermines the prospects for eliminating inequities that now exist. In practice it is difficult to separate the fact of unequal participation in education from that of low overall participation. Policies that increase

overall participation will necessarily benefit disadvantaged groups, if only in the long run; improvements in the status of disadvantaged groups are unlikely to occur when education conditions in general are stagnant or deteriorating.

Ethnic and rural-urban differences in school participation, though considerably attenuated since pre-independence days, remain an issue in most of Africa today. Male-female differences, though close to being eliminated at the primary level, at least in overall regional terms (in 1983 girls comprised 44% of African primary school enrollments), are still much in evidence at the secondary level (34% of enrollments) and especially at the tertiary level (21%). Illiteracy is still much higher among adult females (73% in 1980) than among adult males (48%).

3.2 Declining education quality

The impact of rapid population growth and economic stagnation on the quantity of educational services in sub-Saharan Africa is relatively easy to document. Another probable, though more difficult-to-measure effect of the recent economic and demographic trends in the region is the erosion of quality in education.

(a) The nature and importance of quality

The quality of a school or education system is properly defined in terms of the performance of its students and graduates. In practice, however, because inputs into the teaching process are generally easier to measure than education's outputs, quality is often gauged in terms of the former rather than the latter. Although information on input availability is important, caution is required in drawing conclusions about quality from information on inputs alone. The discussion that follows uses both direct measures of school outcomes to provide information on quality as well as measures of input availability.

When an attempt is made to measure outputs as a direct indicator of quality, the most common approach is to concentrate on cognitive achievement test scores. This makes sense to the extent that enhancing cognitive achievement is prominent among education's goals and contributes centrally to a student's ultimate productivity. This paper will follow the conventional practice and focus principally on cognitive outcomes, because research suggests that these outcomes are highly important (see Box 3.2), and because most of the same factors that foster quality in learning appear likely to strengthen the school's impact in other domains.

[Box 3.2]

The goals of schooling encompass, however, more than just academic achievement. Quality pertains also to how well the school or school system prepares students to become responsible citizens of a nation and to have a set of attitudes and values relevant to modern society. Schools do achieve these goals, and they are important ones.

Frequently when an African child enters school, he or she is faced with a situation quite foreign to his or her life at home in a rural village or urban slum. The language used in the school is often different, the method of communication is written rather than verbal, and existence is categorized into

Box 3.2 ARE COGNITIVE OUTCOMES REALLY IMPORTANT? THE INTERPLAY OF ABILITY, SKILLS, AND SCHOOLING

Earnings go up with education, it is generally believed, because education imparts cognitive skills to workers, and employers pay more for these skills. Critics believe other factors are at work.

If the critics are right, the value of education may well have been exaggerated. Researchers tested the arguments of the critics, in a study conducted in Kenya and Tanzania, by assessing the impact of three factors on earnings: innate ability, years of schooling, and acquired cognitive skills (like numeracy and literacy). Their work provides answers to the following questions.

Do acquired cognitive skills and innate ability matter? Workers with high cognitive skills do earn much more than others. But the direct effects of innate ability improves earnings only slightly (although innate ability does have a large indirect effect on earnings by enhancing the acquisition of cognitive skills).

Do cognitive skills affect earnings in each educational category? There are great variations in skill levels among secondary graduates as well as primary ones. In skill tests, the top third of workers scored 50% to 100% higher marks than the bottom third in each category. This top third can expect to earn 50% more than those in the bottom third in Kenya and 35% more than those at the bottom in Tanzania. Moreover, the top third of primary-school leavers will earn almost as much as the bottom third of secondary graduates.

How large are the indirect effects of schooling and innate ability? In Kenya, secondary schooling raises earnings directly by 21%, but raises them indirectly by 25% by improving cognitive skills. The pattern is similar in Tanzania.

The study strongly supports the view that education endows workers with cognitive skills that draw a premium in the labor market. It shows that: (1) innate talent is not sufficient -- it must be converted to cognitive skills through education; and (2) long years spent at school are not sufficient -- they must be used productively to acquire skills.

subjects that are not referred to at home. A child's major challenge at this stage may not be that of learning new skills, but simply one of adjusting to an altogether different environment. In addition to basic cognitive skills such as literacy and numeracy, therefore, the quality of education has also to do with the successful integration of what children already know when they enter school, with what they will need to learn as they proceed through the education system; quality entails the accommodation of modern, market-oriented skills to traditional, home-based values and needs. Policies for the achievement of these qualitative objectives include adjusting the school calendar to take account of the child's economic functions at home; giving first instruction in the child's mother tongue; integrating subjects around the life of the child and his community; and involving students in the application of theory so that learning has utility beyond that of qualifying individuals for the next level of education. These changes encourage children to look at and react to their environment in new and more productive ways.

When either academic or post-school performance is used to measure school quality, it is necessary to control for the effect of nonschool factors (e.g., innate ability, family background, and early childhood education). The impact of school inputs on performance is the performance gain attributable to these inputs, after controlling for the effects of nonschool factors. Although this paper focuses on school factors, the importance of some nonschool factors affecting student performance are considered also, especially those dealing with the child's health and nutritional status.

Finally, it should be remembered that what constitutes an acceptable standard of school quality is a relative matter. As with other services such as housing, nutrition, and health, the appropriate level of quality differs between different countries at different levels of development and for any particular country over time. For example, as African countries more than doubled their enrollment ratios over a comparatively brief period, it was to be expected that the ability of students to perform at a superior level would decline on average, simply as a function of the region's having moved from a small elitist system to a system serving many children, including those who are disadvantaged with respect to the out-of-school factors that affect learning outcomes.

It is sometimes argued that this decline in average quality is acceptable so long as the performance of those individuals at the top of the achievement distribution does not suffer. Given, however, the serious recent deterioration in learning conditions in much of the region (see next section), there is reason to believe that the performance of the highest achieving students has also declined. Certainly, in order to maintain a constant average quality of education in a rapidly expanding system, there is a need to improve the overall effectiveness of the system. This need remains to be satisfied in most of sub-Saharan Africa.

(b) Evidence of declining quality

Levels of cognitive achievement on the part of African students are low by world standards, and the evidence points to a decline in recent years. Much of this evidence is indirect, however, and focuses on quantities of particular inputs (especially books and other learning materials, management, and maintenance of capital assets) and on the recent decline of these relative to other inputs (especially teachers).

On the output side, information is limited; however, the information that is available is compelling, and it is disturbing. The International Association for the Evaluation of Educational Achievement (IEA) based in Stockholm, Sweden, has served as the coordinating agency for a number of large cross-national studies of student achievement since the mid-1960s. Although few developing countries participated in the earlier studies, the latest rounds of IEA surveys do include more LDCs, including some African countries. The second IEA study of achievement in mathematics, for example, which was conducted in 1981-82, includes (in addition to 14 industrial market economies) information on three upper middle-income countries and three lower middle-income countries. Included in the last group were two African countries, Nigeria and Swaziland. The third country in this income group was Thailand.

For the mathematics study, tests in five sub-fields of mathematics were administered at the end of the 1981 school year to national samples, ranging in size from 800 to 8,000 students, all of whom had reached the age of 13 years by the middle of the school year. Although there were differences across countries, the upper middle-income countries as a group performed as a par with the industrialized ones (for details see Annex Table C.4, column a). The lower middle-income countries, however, and particularly the two African countries, performed much worse. Students in Nigeria and Swaziland answered just over half as many items correctly as students in Japan, the highest scoring country, and about 65% as many items correctly as students in the 17 better-off countries. These differences are highly significant.

Earlier IEA studies of achievement in reading comprehension and general science included no African countries, but the same tests used in these studies were subsequently administered to a small sample of students in Malawi (Annex Table C.4, columns b and c). Although the Malawian students were, on average, six years older than the IEA-surveyed students, their performance was less satisfactory than that of any of the other 16 groups in reading and lower than all but three in science. The number of items answered correctly by the Malawian students was just over half the average number in the IEA-surveyed countries on the reading test and about 84% on the science test.

Examples of specific test items illustrate more concretely the magnitude of the quality problem. In November 1986, an educational research institute in a Francophone African country administered, to fifth grade students, the same mathematics test that had been administered to all incoming fifth grade students in France a few months before. Three of the questions on the test are translated and substantially reproduced below:

(1) $1322 \times 0 = ?$

(a) 0

(b) 1322

(c) 13220

(2) A roast weighs 2kg, 50g, or:

(a) 2050g

(b) 2500g

(c) 250g

(3) A purchase of 4 cartons costs 3.80 Francs.

A purchase of 8 cartons would cost:

(a) 30.40 Francs

(b) 7.60 Francs

(c) 6.60 Francs

Since, for each question, students were given a choice of only three responses, guessing would give a 33% chance of choosing the correct response. In fact, only 33% of the students were correct on the first item; 30% were correct on the second; and 26% were correct on the third. Each of the items tested reflected content that the students' teachers felt was covered in the curriculum. On the test as a whole (40 items), the students performed no better than chance would predict, even though the tests had been administered in reasonably good schools in the capital city. The conclusion is inescapable: students in primary education in this country are learning virtually no mathematics.

The general conclusion to be drawn from these studies is that the quality of education in sub-Saharan Africa is well below world standards. One explanation for this low quality is that expenditure per student, a highly aggregated proxy for educational inputs, is very low by world standards. This is especially true at the primary level.^{2/} Another explanation for the low quality may be that what little is spent on each student is poorly utilized, i.e., that there is internal inefficiency in the education system.

Public recurrent expenditure per student at the primary level in the industrial market economies exceeded expenditure in the countries of Africa by a ratio of 30-to-1 in 1980. The industrial market economies were spending over \$2,200 per pupil in current 1980 dollars (median expenditure in 16 countries with 1980 data available), and Africa (23 countries with data available) only about \$65. East Asia (5 countries) was spending about \$190 per pupil on the average in the same year, and Latin America (20 countries) about \$155. Only in five countries of South Asia was spending per primary school pupil lower yet than the African average.

Per student expenditure in African education is not just low, it is declining (see Table 3.1). The combination of essentially constant budgets (since 1980) and rapidly expanding enrollments has made the financing of education's recurrent costs ever more difficult over time. Between 1970 and 1983, recurrent expenditure per student at the primary level expressed in constant 1983 dollars fell from \$67 to \$48, and at the secondary level from

\$362 to \$223 in the median African country (Annex Table C.5). Only in higher education, which involves relatively few students and where unit costs have been very high traditionally by comparison with lower levels of education in Africa, was there no obvious downward trend in expenditure per student.^{3/}

[Table 3.1]

Low expenditure per student has certainly constrained the level of learning achievement in sub-Saharan Africa. But low quality results also from a misallocation of expenditure. At least until recently, there was a tendency, often encouraged by the behavior of donor agencies, to emphasize development expenditure in education, especially expenditure involving the construction of new facilities, and to ignore the recurrent cost implications of new projects as well as the recurrent inputs required to assure the productivity of existing establishments. For example, the ratio of expenditure on books and supplies to expenditure on teachers' salaries is far lower than most knowledgeable educators would consider optimal. Moreover, because teachers' unions are politically potent and most salaries are protected by contractual obligations, the salary-nonsalary ratio in African public education has tended to increase in recent years as budgets have been cut.

Data for the most recent year available show that teachers' salaries and benefits in sub-Saharan Africa account for about 91% of recurrent education expenditure at the primary level, 70% at the secondary, and 68% at the tertiary (medians -- see Annex Tables A.20-A.22). Even if all of the rest were available for the all-important teaching materials, this does not leave much to spend on them, nor on the maintenance of school buildings and equipment. At the secondary and higher levels, where transfers to students for welfare costs (food and lodging) claim significant sums, the crunch on nonsalary inputs is even tighter than the figures suggest.

For example, educational materials account for just 1.1% of the recurrent primary education budget in the median African country (Annex Table A.20). This allocation amounts to less than \$0.60 per pupil per year, which buys very little in the way of books, slates, wall charts, and writing implements. Even if one concedes that some educational materials are purchased out of development budgets (because of the unwillingness of many donor agencies to finance "recurrent" costs), and notwithstanding the fact that some (perhaps significant amounts, in some places, of) materials are purchased privately by students for their own use, the picture remains stark by comparison with other places. The developed countries spend a larger percentage of a much larger budget on instructional materials, close to 4% at the primary level, which amounts to about \$100 per pupil per year. With only \$0.60 spent per pupil per year on educational materials in Africa, even the most ingenious teacher would find it hard to teach children very much. Only by reallocating a substantial multiple of this amount from other expenditure categories (or by mobilizing this multiplied amount in the form of additional resources) can teachers in African schools again become pedagogically productive.

Table 3.1 Public Recurrent Expenditure per Student in Sub-Saharan Africa, 1970-1983

	1970	1975	1980	1983
Expenditure per primary student	\$67	\$61	\$51	\$48
As % of GNP per capita	16%	19%	16%	15%
Expenditure per secondary student	\$362	\$308	\$195	\$223
As % of GNP per capita	111%	93%	62%	62%
Expenditure per tertiary student	\$2,462	\$3,090	\$2,798	\$2,710
As <u>multiple</u> of GNP per capita	11	12	7	8

Note: Median values. Per student expenditures in constant 1983 dollars. From Annex Tables A.17-A.19.

PART TWO: POLICY OPTIONS FOR AFRICAN GOVERNMENTS

Three of the four chapters in Part Two will deal with the education system by level -- primary, secondary and higher. Because the problems encountered at these three levels differ, the substance and structure of the chapters will differ accordingly. Yet a number of common issues recur in each of the chapters, and these will be discussed in general terms here.

Chapter 3 raised concerns about recent trends in both the quantitative and the qualitative dimensions of African education systems' output. Quantitative and qualitative outputs of the system can be at undesirably low levels for either of two reasons. One is inefficiency, and the other is a lack of resources or inadequacy of finance. The paper argues that both these factors are operative, but places particular emphasis on the importance of strengthening management to reduce inefficiency. Because of the key role of management improvements, a separate chapter is devoted to the subject.

The first set of issues, then, concerns efficiency in education. Efficiency has to do with how well inputs into the educational process are used in producing a school or a school system's desired educational outcomes. Efficiency exists whenever the output obtained from a given budget is at a maximum, or when the budget used to achieve a given output is at a minimum. Educational output, as already seen, comprises two main dimensions. The first is quantitative and has to do with how many students pass "successfully" through the educational process. The other is qualitative and has to do with what happens to these individuals during that process, i.e., with the gains that occur in the form of cognitive achievement and other dimensions of output. In light of these two dimensions, it is useful in discussing policies for enhancing education's efficiency to distinguish between policies that would involve additional participants in the system, given the average achievement gain, and others that would raise achievement, given the number of participants.

Savings realized via more efficient production methods may become available for redeployment. Those realized in a given school or educational sub-system can be put back into the same unit to increase this unit's output, or they can be shifted elsewhere in the economy -- to another unit within the same sector or to a different sector. Although in any particular instance there may be good reasons for doing otherwise, policymakers should, before doing anything else, consider making savings available to the same unit from which they were extracted. Otherwise there is usually little incentive for managers to reduce costs.

The second cluster of policy issues relates to the other factor constraining system output, adequacy of finance. Especially when economic or political criteria would call for an increase in the quantity of education provided (whether an "increase" is defined in terms of additional students, or higher achieving students), the financial question looms large on the policymaker's agenda: How does a society mobilize additional resources for education? To this question, there are three possible answers: (1) government

can allocate additional public resources to the sector; (2) communities and families can allocate additional local or private resources to the sector; and (3) the donor community can allocate additional international resources to the sector.

Given education's importance in the development process, additional resources will need to be mobilized for African education -- from all sources, public and private, domestic and international, although in many countries, public domestic budgets have already been stretched quite close to the limit. Under the conditions of austerity existing on the continent today, therefore, for most African countries the strategy of utilizing resource flows more efficiently offers the greatest potential for ameliorating problems of access and quality; hence the emphasis in this paper on management and efficiency. But diversifying sources of finance beyond the public budget is also important, and the forms of such cost sharing that might be appropriate to each level of education will be discussed in the chapters that follow.

A third set of issues to be addressed concerns the relevance of the curriculum to the needs of individuals and societies. The main issues that many countries face in this domain concern when and how to make the transition from subjects that have broad vocational relevance (e.g., language and science skills) to programs and subjects that will prepare individuals for specific jobs or clusters of jobs. There are several relevant lessons from international experience. The first is that a strong general education, which schools provide efficiently, greatly enhances the future trainability of an individual. The second is that job-specific training is also very important, and that such training is usually most efficiently provided after initial job decisions have been made and in institutions under strong influence of the ultimate employer. Occupation- and job-specific training need not provide individuals with degrees or credentials.

There is no longer serious discussion about the appropriate main emphasis of the primary (and lower secondary) curriculum: to impart the basic skills of language and mathematics, as well as a basic knowledge of the social and natural environment, is what is most relevant at this level to future productivity. The chapter on primary education does not discuss this issue further. At the upper secondary level, however, the trade-off is more real between continuing with generally relevant education on the one hand and specialization on the other. And, as specialization becomes preferable for an increasing proportion of students, the question arises of whether schools are efficient institutions for providing specialized training or whether institutions at or closer to the ultimate work-site would be better. The answer may well differ for different occupations and, perhaps, for different countries at different times. Chapter 5 discusses these difficult issues further, and the chapter on higher education deals with closely related questions such as, for example, the relative importance of producing lawyers versus engineers.

A fourth class of issues involves equity. African governments since independence have stressed, almost uniformly, the importance of poverty reduction -- of eliminating extremes in the distribution of income and achieving broad participation in the development process. World Bank experience has shown that one of the most effective ways to address the needs of the poor is to give them a productive asset such as education, rather than to transfer income to them directly.

Fortuitously, many education policies serving important equity objectives have other important benefits as well. Further extension of primary education, which is perhaps the most important educational policy to address unequal income distribution, is also characterized by high rates of return; education that empowers women also enhances their productivity, both as income producers and also in the management of the home environment; policies that reduce the levels of subsidies given to relatively well-to-do students will not only reduce inequity but also result in improved efficiency in the provision of learning opportunities. A great virtue of educational investments is their potential, properly designed, for reducing inequity; the paper returns frequently to this point in the pages that follow.

* * *

Because this is a sectoral policy paper, the discussion here focuses inevitably on what African education policymakers must consider doing in order to put their own houses in order. To the extent they manage to do so, the claim that the sector can legitimately place on national resources is strengthened. In the end, of course, the success of policy reform in education will depend very much on the institution of appropriate complementary policies in other sectors, and in the overall macroeconomic framework within which all sectors operate.

Chapter 4. THE FOUNDATION: PRIMARY EDUCATION

The growth in primary school enrollments in sub-Saharan Africa during the 1960s and 1970s may be unparalleled at any time or place in history. Through this period, however, some analysts warned that the region's preoccupation with quantitative growth would lead to a serious deterioration in the quality of education. Warnings of falling quality became even more persistent in recent years as the financial squeeze between ever-tighter budgets and ever-larger pupil cohorts starved educational systems of essential operating inputs such as textbooks and facility maintenance. Poor quality in primary education is a serious matter, because this is the only formal education that a majority of today's African children can hope ever to receive, and because the quality of primary education plays a major role in determining the quality of all higher levels of education.

Even so, the extent to which any particular country can increase the relative emphasis given to education quality in the near future depends on the progress already achieved with respect to quantity in the past. In this regard, the diversity within the region is considerable. The median gross enrollment ratio for the ten lowest primary enrollment countries (LPECs) is 37%, ranging from 21% to 49%. The enrollment ratio for 13 middle enrollment countries (MPECs) ranges from 53% to 79%, with a median value of 67%. Finally, the enrollment ratio for the 16 highest enrollment countries (HPECs) ranges from 87% to well above 100%, the median being 106% (see Annex Table C.5).

Furthermore, within every country there are large enrollment disparities between different population groups. In 13 out of the 39 African countries, the share of girls in primary enrollments is smaller than 40%. Much larger than the disparities between girls and boys at the primary level are those found between rural and urban areas. In most countries, one observes, in effect two educational systems, an urban system and a rural system. The former has close to universal enrollment while the latter is composed of scattered (often incomplete) schools and has much lower enrollment ratios. A recent survey in Cote d'Ivoire, for example, showed enrollment ratios in Abidjan and other urban centers 30 percentage points higher on the average than in the countryside. Thus, regardless of the overall enrollment ratio in a country, increased coverage may well involve the addition of children who are more difficult to attract to school (because of high opportunity costs or negative parental attitude towards school) and for whom provision is more costly (because of scattered population).

At first blush, the trade-off between improved quality and further expansion of primary education seems stark. To pose the dilemma: whereas improvement of education quality will need to assume a more prominent place on the agenda of education policymakers in the years ahead, few if any African countries can yet afford to take for granted the dimension of education quantity. A question remains, however, as to the most efficient means of raising the academic competence of pupils by any given amount. If, by increasing the annual flow of certain crucial inputs (such as instructional materials), it becomes possible to bring pupils up to the same level of competence as before in fewer years than before (or to a much higher level of

competence in the same number of years), thereby saving on the use of other, much more costly factors (notably, capital costs and teachers' salaries), then it almost certainly pays to do so. Seen in this light, there is a cost of low-quality instruction, and the trade-off between quantity and quality becomes a moot issue.

In the countries where educational standards have deteriorated the most, the choice between expansion and quality is no longer really an either-or choice. Without some minimal package of basic inputs, including most importantly an adequate amount of textbooks and other instructional materials, virtually no learning occurs. Under these conditions, ensuring the availability of essential inputs is a prerequisite both of quality improvement and of expansion. For the remaining countries, however, it is a question of finding a balance that reflects current levels of enrollment and quality. The remainder of this chapter discusses efficient approaches, first to quality enhancement, then to quantitative expansion. The concluding section of the chapter deals with the question of how to finance improvements in both.

4.1 Measures to improve school quality

This section reviews a number of possible measures for maintaining and raising the quality of primary education. Five categories of inputs into the production of education quality are identified and discussed: (a) teachers (class size, teacher training and morale); (b) instructional materials (textbooks and other reading materials; writing implements; radio and other instructional media); (c) school buildings and facilities; (d) language of instruction; and (e) nutrition and health of children. A sixth important ingredient to improving quality is a strong examination system. External examinations play an important role in quality improvement in two ways: through performance measurement and curriculum improvement. Since this device is essentially a management tool, it is treated in Chapter 7, which discusses the strengthening of management.

The potential for adjusting any of these inputs to improve quality efficiently varies, and the purpose of the discussion that follows is to summarize what experience has to say about the effectiveness as well as the financial and administrative feasibility of the alternatives. In the final analysis, the effectiveness of any input depends on how it is used in conjunction with all other inputs; an effective school is one that offers a coherent package of inputs.

(a) Training and use of teachers

Two dimensions of the teacher input may be distinguished: quantity as reflected in class size, and quality as reflected by factors such as length and content of training received, classroom organization, and teacher morale.

Class size. There is substantial research evidence in support of the proposition that, within broad limits (between 25 and 50 pupils), changes in class size influence pupil achievement modestly or not at all. Given that most classrooms are not designed for more than 50 pupils, however, and given that discipline can be a problem, classes much larger than 50 pupils should probably be discouraged.

In primary schools operating under a single-shift system, the pupil-teacher ratio is a good proxy for class size. The median pupil-teacher ratio in all of sub-Saharan Africa is 39-to-1. This suggests acceptable class size on average. For classes that are at or close to this number, only a substantial reduction in class size, too costly to be considered by any country at the present time, would be likely to raise achievements.

However, even in countries where the average class size is below 45 pupils, there will still be many classes, especially in urban areas, that are much larger than this and where overcrowding may detract from a pupil's opportunity to learn. Moreover, nine of the 39 African countries report average pupil-teacher ratios in excess of 50. In such settings, modest reductions in class size (or larger classrooms) could prove to be cost-effective, especially if this strategy were accompanied by other measures to increase the number of classes that teachers teach on average (through, for example, double-shifting).

Teacher Training. There is an increasing body of evidence on the payoff of various amounts and kinds of teacher training. The results tend to show that preservice training for primary school teachers consisting of more than general secondary education and a minimum exposure to pedagogical theory is not cost-effective. Long residential courses tend to be quite expensive to produce, and teachers' salaries are usually closely tied to the amount of such training received.

In recognition of these two cost factors and the difficulty of changing them, policymakers in some countries, e.g., Burkina Faso, have chosen to shorten the duration of preservice training for primary school teachers. In other countries, the cost of preservice training has been substantially lowered in recent years through use of distance teaching (i.e., correspondence education supplemented by radio and tutorial sessions). Nigeria, Zimbabwe, and Tanzania have all successfully applied distance teaching methods for preservice teacher training; Box 4.1 summarizes Tanzania's experience.

[Box 4.1]

The optimal mix of training modes (general education, preservice classroom study, supervised teaching practice, learning on the job, and in-service training) will depend on the relative costs of the various modes and on the salary structure for teachers. In many countries, however, an emphasis on in-service training has been found to be cost-effective relative to preservice provided that constructive supervision is provided as a concomitant to the training. Some countries (e.g., Botswana, Ghana, Kenya, Lesotho, and Malawi) are now making successful use of distance teaching methods to upgrade the pertinent knowledge and skills of serving teachers.

Perhaps more cost-effective than training per se as a way of raising the professional quality of the teaching force may be to introduce, where labor market conditions permit, more selective criteria for admission to the profession. The recent increase in unemployment among university graduates in the liberal arts and secondary school leavers should help in attracting more able individuals to the sector, although many potentially able teachers may lack formal credentials. A facilitating policy here would be to admit individuals to the profession based on performance on subject-matter tests, then to provide them brief initial and in-service training.

Box 4.1 DISTANCE LEARNING FOR TEACHERS IN TANZANIA

In 1974 Tanzania mounted an effort to achieve universal primary school enrollment by 1977, despite serious resource constraints. It was estimated that 40,000 teachers would be required to reach the goal, and that it could not be accomplished through conventional teacher training methods. Further, the pool of secondary school leavers who might be pressed into service as primary school teachers was small, because the government had focused on developing primary and adult education. Thus, Tanzania needed a new strategy to fill its primary teaching ranks. It chose to use primary school graduates with some experience in adult education and to train them on the job.

Trainees had to be between 17 and 28 years old, live in an area where teachers were in short supply, and have taught adult literacy for at least two years. The strategy consisted of providing an initial six-week residential training course, followed by supervised primary school teaching. While working in the schools and teaching 22 periods a week, trainees followed correspondence courses and listened to related radio programs. In addition, opportunities were provided for them to meet and discuss their work with fellow trainees and supervising head teachers. Trainees were examined each term, and a final, nationally organized, examination was administered at the end of the three-year course. Of the 45,534 students who began the course between 1976 and 1978, 37,325 (82 percent of those who started) completed it, and 35,028 (77 percent) passed their final examinations, thus gaining qualified teacher status.

A comparison of these trainees with a control group who attended a regular teacher training program found the first group performed slightly less well in academic knowledge, but better on measures of classroom behavior. Because they were recruited locally, their level of motivation may have been higher. The combination of the practical classroom apprenticeship with study at a distance appeared to be an effective way to respond to the critical primary teacher shortage. Further, the strategy realized important savings, since teachers are employed during their training period and the costs of residence at training college is minimized. The costs of the distance teaching strategy in Tanzania were calculated to be approximately one-quarter the cost of conventional teacher training.

In summary, in many African countries, ineffective teachers are a constraint to pupil learning, deserving of the policymaker's attention. In most of these countries, in-service training is likely to prove a more cost-effective means of ameliorating this problem than alternative programs of preservice training.

Teacher morale. The teacher's use of time and other classroom resources is known to be a principal determinant of pupil achievement. To the primary school teacher falls the major task of turning government-imposed strategies for quality improvements into reality. But to be successful in this regard requires that the teacher be motivated and dedicated. In the past the appellation "teacher" was a term of considerable respect. The profession commanded high status in the community, and positions were eagerly filled. Today, primary school teachers are often instead a beleaguered and dispirited force, their status much eroded and their working conditions poor.

The lifting of teachers' morale represents a major challenge, since most countries cannot afford additional monetary incentives to achieve this end. Not all measures to regenerate teachers' professional pride and enthusiasm, however, need be costly. Increased provision of instructional materials, and better support and supervisory services from inspectorates and ministries will help improve working conditions, particularly for the many teachers who must work in the relative isolation of rural areas.

(b) Instructional materials

Evidence points strongly toward the provision of instructional materials, textbooks especially, as being the most cost-effective way of increasing the quality of primary education. The scarcity of learning materials in the classroom is the most serious impediment to educational effectiveness in Africa. It is certainly here that the gap in educational provision between this region and the rest of the world has grown widest.

Given that many primary school teachers in Africa have less formal education and teacher training than is usually the case in more developed regions of the world, the use of teachers' guides and other materials designed to assist low-qualified teachers in the organization of classroom activities could prove to be especially cost-effective in the African context. The advantage of such materials is that they are intended to supplement the teacher's own knowledge and to promote the proper sequencing of learning activities in the classroom.

The availability of all such instructional materials has declined in recent years as increased fiscal stringency has led to severe cuts in nonsalary items of expenditure. The problem of the scarcity of appropriate teaching materials, however, goes well beyond the availability of funds. Most African countries have yet to develop a national capacity for the development of low-cost teaching materials that are pedagogically sound and relevant to the national curriculum.

With regard to written materials, an objective common to all African countries should be to develop national skills to adapt and edit such materials. For most countries in addition, enhanced capacity to write and publish such materials is a feasible short-term objective. Local printing, however, should not be taken for granted since small countries with limited

educational markets are particularly costly to serve economically with local presses. The economies of scale achievable through the combination of sophisticated (and very expensive) high-speed multicolor presses and relatively inexpensive but highly skilled labor often makes it more economical for African countries -- and for many American and European publishing houses as well -- to print textbooks for mass circulation abroad. In those African countries where the local printing industry is reasonably developed and efficient, the awarding of contracts for paper procurement and textbook printing through international competitive bidding will assure that prices paid do not exceed the lowest prices obtainable elsewhere by more than the normal margin of domestic preference accorded to goods and services of national origin. Cooperation among groups of small African countries affords the possibility of economies of scale in printing, as well as the possibility of producing materials in those local languages that cut across national borders.

In addition to their development and production, instructional materials need to be stored adequately, and distributed to schools in a timely manner, and teachers need to be trained in their use. All this requires organization and planning and, above all, funds for transport, an item in very short supply.

Exercise books and pencils are basic to the learning of literacy and numeracy skills. To recover costs, some countries have transferred to parents the cost of these basic supplies. An advantage of this approach is that it lends protection to the provision of these relatively inexpensive but pedagogically crucial inputs during periods of financial stringency.

Apart from tangible instructional materials, radio broadcasts to the classroom have proven in some countries (e.g., Ethiopia, Kenya, Tanzania) to be effective. For primary education, the use of radio would usually represent an add-on cost (whereas in secondary and higher education, radio can be used as a partial substitute for teachers -- see Chapter 5). In return for its modest inflationary effect on unit costs, the use of radio can be expected to yield significant learning dividends in primary education, especially in the absence of highly skilled teachers. In Kenya, for example, there was recently a major effort to teach English to primary school students in regions where English was not widely spoken; a careful evaluation showed very substantial learning gains (Box 4.2). Elsewhere in the world there has been very favorable experience with the use of radio for teaching mathematics in primary school; the radio package (including workbook) substituted for textbooks at a quite low increment over what textbooks alone would have cost.

[Box 4.2]

Although radio, when thoughtfully used, has an important potential for improving school quality, there is no evidence that the use of more costly technologies (e.g., television) has any advantage over radio. Indeed, the cost and complex implementation of the once massive educational television system for primary education in Cote d'Ivoire led to its eventual abandonment.

Box 4.2 INTERACTIVE EDUCATIONAL RADIO IN KENYA

Interactive radio differs dramatically from traditional educational broadcasting in its reliance on student participation, or interaction, with the program. Unlike the instructional design of traditional educational radio that encourages passivity as students listen to lecture-style instruction, the design of interactive programs makes creative use of radio. The Kenya Radio Language Arts Project (RLAP), a good example of interactive radio, involved primary school children as active participants in a pedagogically sound dialogue that taught the Kenya language curriculum.

What might have looked like pandemonium in a RLAP classroom was actually a well-designed, tightly-controlled lesson called "English in Action" whose key attribute was that it involved students actively in the learning process. The thirty-minute daily broadcasts, which were punctuated by music and little dramas, incorporate regular pauses for the children to respond and receive immediate reinforcement for answers. Responses could be sung, spoken, provided in writing or through physical action. Typically children were given the chance to respond over one-hundred times during each thirty-minute period. Careful evaluation of students' learning gains after introduction of radio found highly significant increases. The cost of extending RLAP to additional students is estimated to be well less than \$1 per student per year.

The effort to involve children in a conversation with the radio demands precision timing and careful observation of how children respond to radio prompts. RLAP designers have achieved this precision through trials, observations, repeated pretesting, and classroom monitoring. Teachers tended to be supportive of the interactive radio experiment; they saw the program as a way to enhance their work, and not as a way to replace them in the classroom. With assistance from teachers' guides, they work along with the radio programs, calling on individual children as cued by the radio, overseeing written responses, and providing closer overall supervision than would be possible without interactive radio.

Kenya's RLAP was based on the successful experience of Radio Math in Nicaragua. That program's use of interactive learning produced consistently superior results among children in radio mathematics classes, compared with children in conventional classes.

Experience has shown that interactive radio can be used effectively by untrained classroom monitors, as well as trained teachers, with little training or special support. Further, once radio lessons are developed, the annual per pupil cost is modest, since few supplementary learning materials are required.

(c) Physical facilities

Dilapidated construction, missing or broken desks and chairs, and the absence of good ventilation and sanitation facilities are commonplace among African schools, especially in rural areas. Not very much is known about how construction standards and school upkeep affect the quality of education as indicated by pupil achievement, nor about the effects of the presence and condition of other school facilities. One effect of low-standard and poorly maintained facilities may be to discourage pupil attendance. For those who attend, little can be learned, surely, on a rainy day under a leaky roof.

Inadequate plant maintenance and missing or broken furniture are problems that have been aggravated by the current budgetary crisis because, in most African countries, the responsibility for maintenance rests with central government. The general trend toward greater local financing of the capital costs of education, if extended to include capital maintenance, might alleviate these problems somewhat, and the use of more local materials in the construction of school buildings and classroom furniture may make it possible to reduce their costs. Whoever is responsible, central government or local authorities, the failure to maintain physical facilities not only curtails learning, it can increase overall costs when premature replacement of the facilities is the result.

(d) Language of instruction

The diversity of linguistic backgrounds in sub-Saharan Africa greatly complicates the pedagogical process; indeed, linguists identify over 1,250 languages in use today in sub-Saharan Africa. Only 9 of these languages are spoken by over 10 million people as a first or second language. The African educator's response to this challenge has reflected, in part, attention given to colonial precedents and, in part, a healthy sense of pragmatism. Although some countries hold literacy in one or more African languages as an explicit goal of the education system and others do not, the combination of colonial heritage and the relative absence of published materials in these vernaculars has led most African countries to adopt the language of the former colonial government as the national language and to introduce it as the medium of instruction at some level in the formal education system.

Differences in language policy have to do with how high on the educational ladder and how gradual the transition to the national language is expected to be. The colonial powers in Africa pursued different policies with respect to media of instruction in schools, and African nations since independence have often been true to these traditions. As shown in Table 4.1, 11 of 15 former French colonies and all three former Portuguese colonies officially begin instruction in the national language, from the first day of primary school. On the other hand, 13 of 15 former British colonies begin instruction in one or more African languages, teaching English at first as a subject; only later is English introduced as the medium of instruction.

[Table 4.1]

While the decision to use or not to use an African language for instructional purposes often echoes the colonial past, the feasibility of doing so depends also on the number of speakers of the language in the nation. An examination of current school language policies across African countries

Table 4.1 Medium of Instruction by Former Colonial Status

	Medium of instruction in first year of primary school	
	Metropolitan language only	One or more African languages
Former Belgian	1	2
Former British	2	13
Former French	11	4
Former Portuguese	3	0

Note: Entries in the table are the number of countries in each category. Based on Annex Table B.2.

suggests convincingly that the size factor has influenced policymakers. In 21 countries that utilize one or more African languages for instructing beginning primary pupils, the number of (first- and second-language) speakers of the most widely spoken African language is more than five million people in the median case. On the other hand, in 16 countries in which a European language is used as the medium of instruction, the number of speakers of the most widely spoken language is only about two-and-a-half million (analysis based on Annex Table B.2).

Policy toward language of instruction -- whether and when to use the national language or an African language -- must be devised by African governments themselves based on political, as well as economic, imperatives. For most African countries, a central objective of primary education is that pupils emerge orally fluent and literate in the national language. Fluency in the national language may help to promote political stability and build national unity, as well as serve economic purposes.

On purely pedagogical grounds, however, the benefits of mother-language instruction in the initial years of primary school now seem to be established even when literacy in the national language is the ultimate objective. Current research suggests the following: (1) second language acquisition, both verbal fluency and literacy, is most successful when there is a strong foundation in the first language; (2) conversational skills in a second language are learned earlier than the ability to use the language for academic learning; and (3) academic skills learned in school transfer readily from one language to the other, so that skills taught in the first language in transitional programs do not have to be re-learned in the second language.

In light of the above, most linguists are in agreement that, even in situations where instruction is ultimately to be given in a language other than the child's mother tongue, the most effective policy educationally is one of initial instruction using the mother language (vernacular) as medium, followed by a gradual transition to the national language as medium. Ideally, study of the first language, as a subject at least, will continue once the transition is complete. The pedagogical advantage of this approach is more pronounced in a transition period in which the teachers themselves are not particularly fluent in the national language, a situation that is fairly typical in many African primary schools today.

The effectiveness of this kind of bilingual education policy relative to the costs involved, however, depends on both the size of the population group being educated and on the degree of linguistic heterogeneity within individual classrooms. In Uganda, for example, perhaps an unusual case, 47% of primary school classrooms contain students who speak four or more different mother tongues; in this type of environment, instruction in English from the outset may be the only feasible approach. Experience from the Rivers State of Nigeria demonstrates, however, that it is possible to prepare mother tongue textbooks for a substantial number of separate language groups, each one of small size, if that policy is chosen. Country-specific circumstances here will be decisive.

In many countries, however, providing initial literacy in the African language will not be the principal problem. Rather, the problem will be that of effectively introducing a national language that many of today's primary-level teachers speak and read only poorly, if at all. Good materials

are important to rectifying this, as are teacher training and selection. Use of radio also has a particular comparative advantage in language teaching; the success of the "Radio Language Arts Program" in introducing English into rural Kenyan primary schools (Box 4.3 above) exemplifies radio's potential.

(e) Nutrition and health: ensuring teachable pupils

The recent drought in much of Africa and its immediate impact on nutritional status and human survival rates received widespread, if belated, international attention. Unfortunately, although the absence of rainfall was a more or less temporary problem, serious nutritional deprivation predates the recent crisis and will continue in many parts of Africa even as normal harvests are achieved. Childhood malnutrition and concomitant debilitating diseases are certain to continue well into the foreseeable future as perennial problems.

The incidence of malnutrition and disease is especially high among preschool-age children. By the time such deprived children reach school-entering age, a large proportion are physically "stunted" (of below-normal height), which is a frequent concomitant of impaired mental ability. Many of those who are malnourished and sick will never attend school. Those who do enroll tend to be listless from hunger and weakened from their frequent bouts with diarrhea and fever; their attendance and academic achievement obviously suffer. The high benefits predicted to accrue from investment in education are never realized in the case of these sick and malnourished children.

To the extent that health problems continue and imbalances persist (or worsen) between food supply and population, it will be essential to ascertain what remedies there are for children and what the consequences of failing to adopt those remedies will be, for the education system in particular and for society more generally. Programs to promote family planning and provide primary health care, including prenatal care; programs of nutrition education for mothers; preschool education programs for children; and in-school feeding programs for those who enroll -- these all have the potential for yielding very high returns. Because they do not fall neatly within any one ministry's realm of responsibility, however, but instead overlap ministerial responsibilities, programs that address the complex of problems linking health, nutrition, and intellectual development, especially as they affect those not in school, tend to fall between the bureaucratic cracks. Governments may wish to consider giving more attention to the area of preschool child development, especially to nutrition and primary health care, so as to identify approaches that are effective and feasible within particular national contexts.

School feeding programs targeted to those at greatest nutritional risk could, under some circumstances, provide the most effective means for improving a child's ability to learn. The food required for such programs is often available in kind from external sources such as the World Food Programme.

(f) Summary

This review of measures for improving primary school quality has provided only a limited yield of attractive options. The evidence can be summarized in terms of two principal conclusions:

- (1) The following kinds of investments are unlikely to have any noticeable effect on primary school quality despite their potentially high cost: reducing class size, providing primary teachers with more than a general secondary education, providing teachers with more than minimal exposure to pedagogical theory, constructing high quality buildings and furniture, and introducing classroom television or computers.
- (2) The safest investment in educational quality in most countries is to make sure that there are adequate books and supplies. These are effective in raising test scores and, almost invariably, have been underinvested in relative to teachers. This is also an area where external aid has comparative advantage. Other areas that appear to have potential include school feeding and health programs, intensive use of radio ("interactive radio"), in-service education of teachers in subject matter skills, and strengthened inspection and supervision systems.

While these conclusions were formulated with reference to developing countries generally, they apply in Africa. Indeed, the current severe shortage of teaching materials in African primary schools -- in African schools at all levels, for that matter -- gives particular force to the conclusion dealing with textbooks and materials. In terms of rectifiable inefficiency, the relative imbalance of inputs to the detriment of critical learning materials stands out as a pervasive problem. Hence the second recommendation of this paper:

Recommendation 2. A prerequisite for both quality improvement and system expansion in African education is the assured availability of nonsalary recurrent inputs. In countries where recent fiscal constraints and persistent pressures to expand enrollments have combined to distort the balance between salary and nonsalary expenditures, governments should take steps to restore an efficient mix of inputs into the educational production process. The provision of a minimum package of textbooks and instructional materials is usually the most pressing need in this respect, and this is critically important if productive use is to be made of the other (much more costly) recurrent inputs into education, namely, teacher and student time. The problem of inadequate supplies of books and materials exists at all levels of education, but it is particularly acute (and relatively inexpensive to rectify) at the primary level, where an expenditure of about \$5 per pupil per year should meet minimum requirements. Similarly with regard to physical plant and equipment in African educational institutions, the balance between development outlays and maintenance expenditure should, in most countries, be adjusted to give relatively more weight to the latter in order to ensure that full benefit is derived from existing facilities.

4.2 Unit cost containment

The preceding section has reviewed options for quality enhancement and argued that a minimum package of textbooks and teaching materials is a prerequisite both for quality improvement and for further enrollment expansion. To help finance this minimum package, it is essential to identify all possible ways of containing unit costs.

To demonstrate the importance of unit cost containment, it is worth recalling the enrollment disparities noted at the beginning of this chapter and the fact, noted in Chapter 2, that in 19 of the 39 countries dealt with in this paper, primary enrollment ratios have actually declined since 1980. In at least four of these countries, not only have enrollment ratios declined, but also the absolute numbers of enrollees.

To address these problems, this section reviews the scope for unit cost reductions, stressing those measures that preserve quality. The concluding section then turns to a discussion of the scope for mobilizing additional resources for primary education.

(a) Teachers' salaries

The salary bill for teachers typically accounts for between 85% and 95% of primary education's recurrent budget in an African country. Any discussion of strategies for cost savings must include an examination of the scope for reducing what the average teacher gets paid.

The severe scarcity of teachers over much of the past three decades, the (hitherto) attractive alternative employment opportunities for persons with the educational qualifications of teachers, and the heavy political and economic power of the teachers' labor organizations would all tend to contribute to high salaries for teachers relative to average earnings in Africa. It is not surprising, therefore, that international comparisons of primary teacher salaries as a multiple of per capita income reveal that primary school teachers in Africa, especially in the Francophone countries, earn relatively more than their counterparts in other regions. In the late 1970s, the average primary teacher's salary as a multiple of per capita income was 2.5 in OECD countries, 2.4 in Latin America, and 2.6 in Asia. For 22 African countries for which information was available around 1983, the average primary teacher's salary was 5.6 times GNP per capita in the median case (Annex Table A.23). For the 10 Francophone countries, the figure was 8.8 times GNP per capita, and in one, Mauritania, a remarkable 15 times. For the 12 Anglophone countries, by contrast, the average teacher salary was 3.6 times GNP per capita; in Uganda the two were practically on a par. Couching the comparisons in terms of a technically more appropriate (although not readily available) indicator, such as average teacher salary as a multiple of non-agricultural GDP per capita, or of average wage in the modern sector, might attenuate the overall differences and reorder the ranking of individual countries, but it would not alter the general conclusion that teachers are expensive in the skill-short African context.

This is not to say, however, that teachers are necessarily "overpaid" -- i.e., compensated more than is necessary to keep them in teaching given employment opportunities open to them elsewhere in the economy. There are reports of serious teacher shortages and absenteeism, especially in remote

rural primary schools, and of teachers leaving the profession, particularly from secondary schools and universities, to take up more remunerative opportunities in other sectors of the economy. At the same time, many adequately educated young people are actively seeking employment in most African countries, and they provide a pool of talent that (with appropriate hiring and in-service training policies) might welcome reasonable downward adjustments in teachers' salaries if this policy opened up employment possibilities. Even bearing in mind the problem of low teacher morale, and recognizing the political difficulties involved in cutting nominal salaries, there may be some scope for lowering the overall structure of primary teachers' hourly earnings.

However, even in labor markets where the salary of a teacher trained to a given level cannot be reduced, it is possible and perhaps desirable to recruit teachers who are less well-trained and, hence, less costly -- as has been done in Burkina Faso (see Box 4.3). Data for six Francophone countries show that the difference in the starting salaries of teachers with two and four years of preservice training (following completion of junior secondary education) is 40% at the median. In view of the modest effects on educational quality (as measured by pupil achievement) of the duration of professional pedagogical training for teachers, recruitment of the more trained group of teachers is not likely to be cost-effective in these countries. Indeed, use of essentially untrained but educated young people as primary teachers -- A-level or Baccalaureate graduates prior to (or instead of) entrance into universities, or university graduates fulfilling a national service obligation -- is an option that could reduce the average cost per teacher and, particularly if combined with intensive short-course pedagogical training, would likely not involve any sacrifice of quality.

[Box 4.3]

Finally, a country could reduce the average rate at which teachers move from one step on the salary scale to the next. At present in most countries, salary increments are given every two years or so, more or less automatically. As an alternative, a new norm of four or five years between promotions might be established. This time could be reduced, however, by two or even three years, for primary teachers willing to teach in rural areas, for post-primary teachers in subjects difficult to cover (e.g., the sciences), or for teachers with outstanding records of attendance. In general, a strong case can be made in theory for the rationalization of salary structures -- i.e., for rewarding with higher pay those characteristics of teachers that are in short supply instead of linking salary progression very rigidly to age, seniority, and entry qualifications. Certainly a start in the right direction could be made simply by associating a below-norm time-in-step to rural service or successful completion of in-service training programs.

(b) More intensive use of teachers

The salary bill required to sustain a given enrollment is defined by the average salary per teacher and by the average ratio of pupils to teachers. Given the difficulties involved in reducing teachers' salaries, using teachers more intensively would appear to offer greater scope for reducing the salary costs per pupil. As shown in Annex Table C.5, the pupil-teacher ratio differs considerably among African nations. Of the 38 countries for which 1983 data were available, 18 had ratios of 37 or below (including 7 with ratios below

Box 4.3 REDUCING TEACHER COSTS IN BURKINA FASO

Efforts to expand provision of primary education in Burkina through reduction of unit costs have been hampered by the relatively high cost of teachers. Although primary teacher salaries are modest by international comparison, they are high in comparison with Burkina's income level (more than 10 times the GNP per capita, versus 2.4 times in Latin America and 2.6 in Asia). In light of the fact that 98% of the primary education budget goes for teacher salaries, any attempt to reduce the costs to this sub-sector had to address this central issue.

The primary teacher work force consists mainly of two categories: "instituteurs-adjoints" (level B2 in the civil service salary scale), recruited from graduates of the lower secondary schools and trained for two years; and "instituteurs" (level B1), recruited from graduates of the upper secondary schools or through examination promotion from the "instituteur-adjoint" level. Liberal standards for promotion from the B2 to B1 level added to the budgetary pressure by driving up teacher salaries at a fast pace.

Efforts to reduce teacher costs through an increase in the pupil-teacher ratio were not attempted, since the national average was already quite high at 65-to-1. Instead, Burkina is lowering unit costs by restructuring the primary teacher corps and improving internal efficiency through better-focused teacher training. It has been demonstrated that by reclassifying newly-recruited "instituteurs-adjoints" from level B2 to C1, and reducing training for this group from two years to one, unit costs can be brought down significantly. Implementation of these policy changes, combined with a revision of current fellowship and subsidy policies, would produce resource shifts in favor of primary education expansion. Burkina thereby could attain its unofficial 60% enrollment target for the year 2000, while realizing simultaneous quality improvements through an increase of teaching materials. If no policy changes were implemented, the gross enrollment rate would rise only in proportion to overall budgetary growth, falling far short of the 60% target.

The new "instituteurs-adjoints", who will comprise the standard teacher category in primary education, will receive training at the National Primary Teachers College in Loubila. The course consists of pedagogical training (40%), general subjects (40%), and complementary courses such as agriculture and physical education (20%). These teachers are to receive field assistance through the provision of textbooks and teaching materials, regular pedagogical support, and a gradual decrease in class size.

Further, the primary teacher promotion examination is being upgraded through the introduction of general subjects in order to introduce a measure of selectivity into the process. This is expected to raise promotion requirements, thus slowing the overall rate of promotion, and thereby leading to a gradual reduction in average teacher salaries.

32). In these 18 cases at least, it should be possible to increase the number of pupils without increasing commensurately the number of teachers. The extent to which this can be done will, of course, be greater, the greater the population density in a particular country.

Even a modest increase in the pupil-teacher ratio can result in quite dramatic savings. For example, in a system where the ratio is currently 35-to-1, a 20% increase would make the ratio 42-to-1. If the system were now enrolling 1.4 million first-level students (an average-size system in the region), the same number of teachers (40,000) could now accommodate an additional 280,000 students given the new ratio. Where teachers' salaries now account for 90% of the recurrent primary education budget, if the pupil-teacher ratio were not increased but kept at 35-to-1, adding the same 280,000 students to enrollments would add a full 18% to the budget. This difference is not at all trivial when one is talking about an annual primary education budget in the tens or hundreds of millions of dollars.

There are three ways that the pupil-teacher ratio can be increased: (1) by increasing the average teaching load of teachers -- i.e., the number of classes taught per school year; (2) by reducing the average attendance load of pupils -- the number of classes attended per school year; and (3) by increasing the average class size -- the number of pupils in a class.^{1/}

Teaching loads can be increased by increasing the number of classes taught per week and/or by increasing the number of weeks in the school year. The latter measure offers particular promise in a number of African countries where the school year is now quite short. Of course, for these measures to increase the pupil-teacher ratio, the number of classroom hours must be extended only for teachers and not for pupils. This implies some system of "double-shifting" (i.e., splitting the school day, school week, or school year), with each of the two sessions catering to half of the total number of pupils enrolled. Such measures may be impossible to implement without compensating teachers financially, which tends to defeat the original purpose. Doing so can still reduce average per pupil cost, however, so long as the increase in the pupil-teacher ratio is greater than the increase in teachers' salaries and provided that a heavier teaching load does not seriously undermine the average teacher's classroom effectiveness. Our assumption is that, in many instances, teachers will be willing to accept a reduction in hourly earnings in order to increase their annual earnings (by being given the opportunity to teach additional hours per year). In the interest of reducing unit costs and extending enrollments, Senegal has recently decided to implement a policy of double-shifting (see Box 4.4).

[Box 4.4]

In addition to raising teaching loads, countries should make every effort to enforce whatever teaching loads are officially on the books. Absenteeism is quite widespread in many countries. Enforcement of discipline with respect to duties is essential for efficiency; it may entail replacing slack teachers with currently unemployed graduates. In addition, countries should minimize the extent to which those trained and paid as teachers are assigned to other, extraneous duties; many teachers perform office and supervisory tasks that could probably be performed less expensively and at least as satisfactorily by somebody trained for such work.

Box 4.4 REDUCING PER PUPIL COSTS THROUGH DOUBLE-SHIFTING IN SENEGAL

Primary enrollment ratios in Senegal were expected to fall by 11% by the year 2000 owing to primary school population increases and growing pressure to contain educational expenditures. In an effort to prevent this decline, the government of Senegal has decided to implement a number of efficiency measures to lower unit costs in primary education. Senegal ranks highest among low-income African economies in terms of primary education unit costs (US\$ 101 in 1983, Annex Table A.17). Teacher salaries, between seven and nine times GDP per capita, account for much of the problem. A second key factor responsible for driving up unit cost is the significantly lower student/teacher ratios in rural areas as compared to urban. Unit costs vary by as much as 110% in the extreme cases. The use of teachers in administrative positions also accounts for high unit costs.

One measure to lower unit costs, increase enrollments, and reduce the number of overcrowded urban classes (which, it is believed, have played a role in declining pass rates in the primary completion exam since the late 1960s) would be the introduction of a double-shifting system. Under this scheme, one teacher would teach two shifts and receive 25% of his or her base salary as extra compensation. Weekly classroom hours for students would be reduced from 28 to about 20; to compensate, the school year would be extended by 30 days. If this system were implemented in about 20% of the overcrowded classrooms, and it were initiated at grade 1 in the first year and extended to grades 2, 3, and 4 over a four-year period, it would then be possible for 20,000 additional students (or 4% of current enrollment) to gain access to primary education in Senegal by the end of the project period.

If the double-shifting policy were implemented alone, with no other policy interventions, it would reduce the decline in enrollments from 11% to 9% between 1986 and 2000. In order to have an even more pronounced impact on enrollment rates, double-shifting could be instituted as part of a broader policy package for reducing unit costs. Other elements that Senegal will implement include: (1) increasing the proportion of "instituteurs adjoints" (who have less training, and are thus paid at a lower level than "instituteurs"); (2) redeploying 400 teachers from administrative positions into classroom teaching; (3) reducing the growth of expenditures for secondary education, higher education, and education administration; (4) reducing public funding for education fellowships; and (5) limiting the University of Dakar's campus services budget.

It has been estimated, if all of these policy measures, including double-shifting, were implemented together as a package, that a total of \$176.3 million could be reallocated to primary education between 1986 and 2000. Such a reallocation would represent 18.3% of the cumulative budgets for education in Senegal between now and the end of the century. Moreover, were the full range of policy measures to be put into place, the primary enrollment rate could be expected to increase between 31.2% and 65.5%, and unit costs to fall between 12.3% and 19.8%.

Reducing the average attendance load of pupils, either by reducing the number of classes attended per week or by reducing (for pupils) the number of weeks in the school year, is the second major strategy for increasing the pupil-teacher ratio and, thereby, reducing the salary costs per pupil. The savings generated by such measures must be weighed against any loss in the average achievement of pupils. For some countries, however, present financial constraints may necessitate that the trade-offs at least be considered.

In particular, countries that now provide the same number of weekly hours (e.g., 30) for all primary grades might consider reducing the length of the school day for, say, the first three grades so as to permit a second shift. The most vocal opposition to a shorter school day is likely to come from parents employed in the urban wage sector, since they may have to make alternative after-school (or before-school) childcare arrangements. Parents in rural areas, on the other hand, may welcome a shorter school day, as this will reduce the opportunity cost of children's school attendance.

The third way of increasing the pupil-teacher ratio is to increase the average class size. Even in countries where the average class size appears "about right" (in the 35-to-45 pupil range), the average usually masks large differences between urban and rural areas. In urban areas, classes of 50, 60, and even 75 pupils are not uncommon. In such settings, smaller classes should probably be the objective. This can be achieved by double-shifting, with pupils attending school only half of each day (or every other day).

In rural areas, on the other hand, the problem is usually not overcrowding but rather the reverse -- classes that are uneconomically small. In these areas, special efforts should be made to increase class sizes. Several approaches should be considered. First, in areas where new schools are being built, careful school-location planning will help. A second approach, which to be successful would probably require special materials and training for teachers, is multi-grade teaching. A third (more controversial though easier to implement) approach is that of admitting pupils only in alternate years (as is done now in rural areas of Mali). In other words, the birth dates of children entering the first grade in a particular community in a particular year would span two years instead of just one, and in any given year, only three years of a six-year primary cycle would be taught (i.e., in Year 1, new students would be admitted and grades 1, 3, and 5 would be taught; in Year 2, no students would be admitted to first grade and grades 2, 4, and 6 would be taught).

(c) Reduction in repetition and dropout

Even where the cost per pupil year is reasonable owing to cost-efficient utilization of teachers, the cost per completer of the primary cycle is everywhere higher than need be because of large numbers of pupils who repeat grades and others who drop out before they complete the cycle. For sub-Saharan Africa as a whole, repeaters account for 16% of primary enrollments (23% in Francophone and 8% in Anglophone countries), and because of dropout, only 61% of those who enter the first grade reach the final grade of primary education (median values -- see Annex Table A.12). As a result, it is estimated that the cost of each completer in the median country of Africa is 50% higher than it would be in the absence of repetition and dropout. In general, the situation is worse, the lower the income of the country. In 10

out of 24 "low-income economies" (GNP per capita below \$400 in 1984), the cost per completer is more than double what it would otherwise be. Although it is useful to note these high costs per completer, it is essential to bear in mind that even quantitative measures of educational output have a qualitative dimension: The numbers of repeaters (and, to some extent, dropouts) can change with promotion standards. Ultimately the efficiency of these and other policies can be assessed only in terms of their impact on learning gains.

Dropouts occur for a variety of reasons whose relative importance varies among countries and individuals. Students may drop out because they fail a grade or otherwise have become discouraged of their chances for success, because opportunity costs of continuation become too high, or simply because of lack of opportunity to continue in systems with large proportions of schools offering only some of the primary grades. Although some benefits undoubtedly accrue to pupils who drop out before completion, it can be assumed that these benefits are small whenever dropout occurs prior to the attainment of basic literacy and numeracy, at about the fourth grade. Beyond that, there is little evidence of any inefficiency associated with dropping out before completion of a cycle.

The extent to which repetition should be regarded as waste is a controversial point. The proponents of repetition claim that repetition is useful in that it remedies inadequate achievement and helps pupils who are emotionally and intellectually immature when they enter school. On the other side, the critics of repetition claim that achievement depends principally on nonschool factors, that valid tests cannot be developed to separate failures from promotees, that repetition does not improve the achievement of slow learners, and that by calling attention to their poor performance, it hurts the repeaters' self-image and their prospects for future success. Most important in the developing country context, repetition extends the duration of study and, hence, raises the cost per year of school finally completed. To eliminate repetition, these critics propose that pupils be promoted automatically from one grade to the next. The proponents of repetition oppose this policy, saying that it lowers academic standards, destroys pupils' incentive to learn and teachers' incentive to teach, and creates pedagogical problems by increasing the ability range within the classroom.

Since one reason pupils repeat grades, especially toward the end of the cycle, is (they believe) to better their chances of passing the examinations for entry into the next level of education, a useful strategy to reduce dropouts involves separating the primary school leaving examination from the secondary school entrance examination. Under this arrangement, pupils take the school leaving examination at the conclusion of the cycle and, if successful, receive a diploma certifying completion of primary school. The secondary school entrance examination, however, is taken independently. Individual students can do what they want to improve their chances of success on the entrance examination, e.g., through independent study or private tuition, but not by remaining in a government primary school after completion.

Major reductions in dropout and repetition rates could be accomplished, but they would require sizeable, and costly, improvements in the school and classroom factors that cause pupils to repeat or drop out. Thus, at least in the short term, the areas of repetition and dropout probably offer little scope for cost savings.

(d) Appropriate construction standards

There is scope in many African countries for the development and use of new school designs which, while meeting minimum standards, are much cheaper than those used typically to date. The cost of facilities is now often a substantial fraction of the economic cost of providing primary education. Annualized capital costs are, in some cases, the equivalent of 80% of annual recurrent costs. Strategies to increase teacher utilization would be facilitated in the future through the choice of appropriate construction designs. In addition, appropriate standards would emphasize the use of local materials, and this, in addition to reducing building costs, would facilitate the ongoing transfer of responsibility for primary school construction and maintenance from central government to local communities.

In many cases, greater reliance on local materials is also a way of improving construction quality. For example, in Niger, the cost of a classroom constructed in concrete is five times that of one constructed from "banco" (the most commonly used construction material in rural areas). Yet the latter is cooler in summer and warmer in winter than the former.

Box 4.5 describes a project recently implemented in Senegal that demonstrates the feasibility of low-cost school construction techniques on a large scale.

[Box 4.5]

4.3 Mobilizing resources for primary education

While there are some policies by which countries can improve the efficiency of resource use in primary education, there is, when all is said and done, little likelihood of reducing unit recurrent costs at this level significantly, especially if countries hope also to improve the quality of education. There is more scope for reducing unit capital costs, but even so, it is unlikely that overall per capita costs can be reduced very much at the primary level. The principal reason for the low quality of primary education in Africa is the comparatively low resource use per pupil. In 1983, the median per pupil public expenditure was under \$50. By comparison, public spending per pupil in East Asia and Latin America was approximately two-and-a-half times this amount, and in the industrialized countries, over 30 times. Moreover, real per pupil expenditure declined nearly 30% in Africa between 1970 and 1983 (Annex Table A.17).

Thus, further growth of primary education will require, inevitably, that additional resources be mobilized. Even with no quality improvements (and assuming also no improvements in efficiency), the amount of resources devoted to the primary level would need to increase by more than 3% annually just to keep pace with population growth. In principle, these additional resources can be made available either by reallocating within the education sector in favor of the primary level or by increasing the total allocation to the education sector. The latter could be achieved through an increase in public or private spending, or through an increase in foreign aid for education. In the recent past, only about 8% of foreign aid to the education sector in Africa went to the primary level. While this is partially understandable in an aid environment emphasizing discrete project investments, the more program-oriented pattern of aid flows that is advocated in Chapter 9

Box 4.5 LOW-COST SCHOOL CONSTRUCTION IN FRANCOPHONE AFRICA

The high cost of classroom construction in Senegal in past years has stemmed from reliance on expensive imported materials, designs, and techniques inappropriate to the local setting, on inefficient procurement methods, and on the rapid deterioration of facilities caused by insufficient maintenance. Despite efforts over the past 15 years to bring construction costs down, in 1985 the Senegalese government was still facing initial investment costs of around \$300 per student place. However, a recent pilot project undertaken by the government has brought the cost per student place down to \$155.

Eighty-six primary school classrooms in the Kolda and Tambacounda areas were constructed under this project. Costs were held down a result of a number of strategies. The tendering procedure was based on a bidding process organized as a competition among partnerships of architects and contractors. The outcome was a replicable, low-cost, low-maintenance construction technology that is labor-intensive and maximizes the use of local materials. Fully eighty percent of total construction materials are locally available. The foreign exchange component of this technology represents approximately 28%, compared with about 52% for classical construction methods.

The project relies on a general contractor to provide transport, technical know-how, and skilled labor, and to train local unskilled labor as masons and brick-layers. The additional income generated for the community from wage receipts, at the prevailing wage of \$4 per day, is \$1,800 per classroom constructed. Through the training of unskilled labor on the job, local artisans and craftsmen will be created, and a new regional employment market will be developed. Furthermore, the design's high thermal mass will counteract the uncomfortable daytime temperatures common in Senegal and, thus, provide a better environment for learning.

Similar projects are currently underway in Mali, Burkina Faso, Niger and the Central African Republic. Implementation of such pilot projects has permitted governments to gain experience in managing programs for the construction of small buildings in large numbers of widely scattered sites using a new technology. At the same time, education financing studies have pointed out the difficulties that central governments are likely to face when they assume full responsibility for financing capital investment in the sector, particularly with respect to the construction of primary schools. Funds generated through local taxes are likely to play an increasingly important role in this regard. Thus, the task for central governments and their ministries of education will be to manage and monitor existing education facilities, to provide incentives to regional authorities, and to insure that minimum standards are met.

of this paper would provide a more generous share to the primary level. Foreign aid for primary education will be dealt with in Chapter 9. The remainder of this chapter discusses domestic resource mobilization.

In many African countries, a good case can be made for gradually increasing the proportion of public education budgets allocated to primary education.²⁷ This is so particularly in the low primary enrollment countries (LPECs), where the median share of education spending going to the primary sub-sector is only 34% (Annex Table C.5). Here, an adjustment in favor of primary education would be both profitable to the national economy and equitable (expansion of primary education benefits less advantaged population groups disproportionately). As the data in Table 4.2 clearly suggest, inadequate relative allocations within the education sector may be an important reason for the low enrollment levels of the LPECs.

[Table 4.2]

However, although adjustment of shares may be desirable on efficiency grounds and, too, in terms of equity objectives, politics could stand in the way. Obviously, if primary education's share is to be increased, the share going to something else must be diminished. An economically attractive source of public funds would be the budget for living-expense subsidies to students at the tertiary level. The effect here could be significant. A study based on 12 African countries found that, on average, primary enrollments could increase by a remarkable 18% with the public funds saved if university students paid their own living expenses.

Increased total public spending on education would have to be financed either through increased economic growth, maintaining constant the share of resources devoted to education, or by an increase in education's share of the total budget. As regards the former, the growth prospects for sub-Saharan Africa over the foreseeable future are modest at best. In its 1986 World Development Report, the World Bank examined scenarios of average annual rates of GDP growth ranging from 3.2% ("low case") to 4.0% ("high case") for the low-income African countries over the next ten years. If the "low case" is the more accurate projection, this means that these countries may suffer another decade of falling real incomes per capita. Even in the "high case," GDP growth will just barely keep pace with the projected population increase. Thus, over the next decade, the additional resources required for doing more than simply maintaining present educational coverage and quality will not be derived from economic growth.

In 1983, the countries of sub-Saharan Africa allocated 15.3% of total public expenditures to education in the median case (Annex Table A.14). Whether this figure is on the high side, on the low, or about right depends on one's assessment of the relative profitability of public spending in different areas. There are, in any case, marked differences between African countries in the priority given to education. Whereas one out of five countries allocated more than 20% of public expenditure to education in 1983, one out of three countries allocated less than 13%. Countries in the lower half of the distribution might wish to review whether education is really getting its appropriate share of total expenditure, or whether a higher budgetary priority for the sector might not be warranted, as was recommended in Chapter 2.

Table 4.2 Primary Enrollment Ratios and Primary Education's Share in the Education Budget

Country Groups <u>a/</u>	Median Gross Primary Enrollment Ratio	Median Percentage of Recurrent Education Budget Devoted to Primary
Low primary enrollment (LPECs)	37%	34%
Medium primary enrollment (MPECs)	67%	45%
High primary enrollment (HPECs)	106%	46%
All sub-Saharan African countries	77%	43%

a/ LPECs = 10 countries where the gross primary enrollment ratio is below 50%. MPECs = 13 countries where the ratio is between 50% and 80%. HPECs = 16 countries where the ratio is above 80%.

Note: Based on Annex Table C.5.

Additional resources to improve the quality of primary education can be mobilized through various strategies to recover the costs of the education from the recipients of the service provided. Educational costs may be recovered through school fees or other monetary levies, or they may be recovered in kind, e.g., in the form of free labor for school construction and maintenance. It is estimated that private expenditures now cover about 6% of costs in East Africa and 11% in West Africa (these percentages are only about one-third as high at the university level).

A distinct trend in recent years, particularly in the Anglophone countries, but elsewhere in the region as well, has been the shift in major responsibility for the construction and maintenance of primary school classrooms from central government to parents and local communities. Driven by the inadequacy of government funds to support the sizable capital budget for primary education, many African governments were quite willing to accept a much increased role in this regard on the part of the recipients of the educational services. This policy has enabled primary school development programs to proceed at a more rapid pace than would have been possible otherwise, and it has tended to ensure that new schools are opened where the demand for primary education is the strongest.

For items other than classroom construction and maintenance, private financing plays a less significant role in African primary education. This is as it should be, given the likelihood that fees will result in the very poorest African children being deprived of receiving any education at all. Recent African experience suggests that parents are much less willing to pay for basic tuition than they are to pay for institutional materials; where tuition fees have been imposed in public primary schools, some enrollment declines have been experienced. Very few countries anywhere else in the world charge for public primary education.

As further justification for subsidization of primary education costs, there is increasing evidence of large externalities that accrue to investment at this level. A recent study of education and production in Nepal showed that farm yields depends, not only on the farmer's own educational attainment, but also on the average educational attainment of the community in which the farmer lives. A recent evaluation of Bank-financed project-related training suggests that the effectiveness of such training is high in countries where the adult literacy rate is greater than 50%, and very much smaller in countries where the rate is less than 50%.

Although charging primary pupils for instruction should be generally discouraged, there may be situations where the judicious use of modest fees might be used for the explicit purpose of increasing accountability in education. For example, a purchase fee or rental charge for textbooks and other materials that are crucial to high levels of pupil achievement would help to ensure that these inputs are not eliminated from the budget during times of fiscal austerity. Another efficiency enhancing mechanism would be for parental groups to "top up" primary-level teachers' salaries in proportion to how much time teachers actually spend in the classroom, an incentive to reduce academic absenteeism.

Private school enrollments account for about 6% of total primary enrollments in the median African country. Private education plays a somewhat larger role in Anglophone Africa (22% of enrollments) than in Francophone (3%). A "private school," however, is a school that is managed by nongovernment authorities; the financing of private education can come from public, as well as from private sources. Indeed much of the private education that exists in Africa is at least partially subsidized by government. Hence, data on enrollments give an exaggerated idea of the level of private financing of primary education. Nonetheless, a greater degree of tolerance than many African governments have shown in the past for the various private alternatives to public education at the primary level would almost certainly facilitate expansion.

Chapter 5. CONSOLIDATION OF COMPETENCE: SECONDARY EDUCATION AND TRAINING

Secondary education builds on the foundation provided by primary education. Its goal is the consolidation of competence, particularly the strengthening of general intellectual skills relevant to many occupations and to further education, so as to prepare individuals for adult responsibility and for the world of work, where the majority of job-specific skills will be learned. Quality enhancement was identified in Chapter 4 as the immediate goal with respect to primary education for most African countries. The quality of secondary education is also a major concern since, as in the case of primary, the essential nonsalary recurrent inputs are not being provided in adequate amounts. For nearly all African countries in the years to come, however, the biggest challenge with respect to secondary education will be expansion -- how to satisfy the burgeoning demand for the now-limited number of secondary school places.

As recently as 1960, only two of the 39 countries of sub-Saharan Africa enrolled more than 6% of the relevant age group in secondary education. These two were Mauritius and Ghana, where the gross enrollment ratios in 1960 were 22% and 19% respectively. For the rest of region, secondary education remained a highly selective enterprise.

Today, participation in secondary education varies greatly across countries in Africa. At one end of the spectrum are ten "low secondary enrollment countries" (LSECs) with gross secondary enrollment ratios below 10% in 1983. There are sixteen "middle" enrollment countries (MSECs) with ratios between 10% and 20%. Finally, at the top are thirteen "high" enrollment countries (HSECs) that have surpassed the 20% mark, an impressive accomplishment in the light of historical precedents.^{1/} Three of the HSECs -- Mauritius, Zaire, and Congo -- already have secondary enrollment ratios above 50%.

As would be expected, gross secondary enrollment ratios are related to per capita income. Nine of the 13 HSECs are classified by the World Bank as "middle-income" economies on the basis of their 1984 GNP per capita (\$400 or more). Conversely, all ten of the LSECs are "low-income" (GNP per capita below \$400). The 18 Francophone countries are equally distributed across the three secondary enrollment groups. The 16 Anglophone countries, on the other hand, are skewed towards the high end of the enrollment spectrum, with seven such countries classified here as HSECs, six as MSECs, and only three as LSECs.

Table 5.1 shows how the three country enrollment groups differ with respect to other key secondary education indicators. Those with higher enrollment ratios are not only richer, they also spend a greater proportion of national income on education (column b). The greater emphasis put on secondary education has come at the expense of primary education. Among the 13 HSECs, the proportion of public expenditure on education allocated to secondary education (column c) ranges from a low of 16% to a high of 56% (median 35%), whereas among the 10 LSECs, this figure ranges from 14% to 40% (median 30%). Among the HSECs, the ratio of secondary enrollments to primary enrollments (column d) ranged from a low of 0.13 to a high of 0.57 (median 0.24); among the

LSECs, the ratio ranged from just 0.02 to 0.26 (median 0.10). The progression rate from the last grade of primary to the first grade of general secondary education (column e) was only 54% for the median HSEC, compared to only 16% for the median LSEC.

[Table 5.1]

Even in countries where secondary participation rates are below the Africa-wide average, the growth of the secondary education sub-secto. in recent years has often been quite robust. Of the three major education levels, secondary would appear to have been the least affected by the recent economic depression. The rate of growth of secondary places on the continent, which had been 12.4% between 1960 and 1980, fell only to 10.9% after 1980, about a 12% decline in the growth rate. The growth rates of post-secondary and primary enrollments fell much more precipitously, 39% and 59% respectively (Appendix Tables A.1-A.4). Reflecting this shift in favor of enrollments at the secondary level, public expenditures on secondary education increased relative to expenditures on primary and tertiary education in a majority of African countries between 1980 and 1983 (Appendix Table A.16).

Political pressures have contributed to this reallocation. The earlier rapid expansion of first-level education in African countries resulted in an ever-larger pool of primary school leavers, many of whom were no longer finding jobs in the modern wage sector, which is what they had come to expect. The heightened scramble to fill the limited number of secondary school places generated political pressures for expansion. Generous public subsidization further fueled the demand for secondary school places.

The case for the expansion of secondary education, however, is more than just political. There is a strong economic rationale for expanding national systems of secondary education in most African countries, so long as hard measures are taken to increase the efficiency and equity of these systems. Evidence was reviewed in Chapter 2 indicating that social rates of return to investment at the secondary level are high by comparison with most alternatives in the region, including many educational alternatives. While much of the research to date has shown even higher rates of return for primary education (owing, at least in part, to the much lower per student costs at the primary level), there is recent evidence, reviewed in Box 2.1, to suggest that the rate-of-return differential between primary and secondary education in Africa has narrowed considerably over time, increasing the relative economic attractiveness of the secondary level.

In assessing the economic consequences of substantial expansion of secondary education, it is interesting to compare the recent experiences of Kenya and Tanzania. Kenya has pursued a relatively expansionary policy with respect to secondary education, whereas Tanzania's approach has been much more restrictive. Box 5.1 suggests that an important part of Kenya's much more rapid growth in average wage levels can be attributed to its investments in the quantity and quality of secondary education.

[Box 5.1]

Secondary education, in conclusion, will and should continue to expand in sub-Saharan Africa for sound economic and political reasons. Prerequisite to the further expansion of secondary education will be, in today's economic

Table 5.1 Enrollment Characteristics and Education Expenditure By Secondary Enrollment Groups ^{a/}

	Gross secondary enrollment ratio	Public expenditure on education as a percent of GNP	Secondary as percent of public recurrent expenditure on education	Ratio of secondary to primary enrollments	Progression rate from primary to secondary	Females as percent of secondary enrollments
	(a)	(b)	(c)	(d)	(e)	(f)
Low secondary enrollment countries (LSECs)	5	3.3	30	.10	16%	32
Medium secondary enrollment countries (MSECs)	15	4.0	30	.21	45%	33
High secondary enrollment countries (HSECs)	24	5.3	35	.23	54%	39
Sub-Saharan Africa	16	3.9	31	.20	40%	33

Note: Entries are percentages for the median country. Based on Annex Table C.7

^{a/} LSECs: gross secondary enrollment ratio below 10%. MSECs: ratio between 10% and 20%. HSECs: ratio above 20%.

Box 5.1 POLICIES TOWARD SECONDARY EDUCATION

Major differences between educational policies in Kenya and Tanzania, particularly with respect to secondary education, emerged in the late 1960s. In Tanzania, the government reduced the share of public spending allocated to secondary schooling and, until quite recently, also restricted the formation of private and community secondary schools. In contrast, the Kenyan government encouraged the growth of secondary education in both the public and private sectors. By 1980 these divergent policies led to secondary school enrollment ratios that were six times greater in Kenya than in Tanzania.

Important qualitative differences in secondary education also emerged during this period. Tanzania placed greater stress on the teaching of agriculture and other vocational skills, thus diverting time from the teaching of general academic skills. The Tanzanian system also put great emphasis on the use of Swahili at the primary level, perhaps making it more difficult for students to learn in English at secondary school. As a measure of quality, research indicates that for any given combination of inputs of individual ability and years of secondary schooling in the two countries, cognitive outputs (i.e., scores on academic achievement tests) are substantially higher in Kenya than in Tanzania.

Since the quantity and quality of secondary education are greater in Kenya than in Tanzania, it was to be expected that over time the cognitive skill level of the average employee in Kenya would rise relative to that of the average employee in Tanzania. In accordance with this prediction, results of cognitive tests reveal that Kenyan employees are more literate and numerate than their Tanzanian counterparts, despite the fact that average scores of Kenyans and Tanzanians on tests of reasoning ability are essentially the same. Since analysis has shown that workers who are more literate and numerate are more productive, one may conclude that Tanzania has paid a price in output foregone by restraining the growth of secondary education and reducing educational quality.

One way to quantify this price is to estimate how much greater the cognitive skill and productivity of the Tanzanian labor force would be if the quantity and quality of education were increased to the Kenyan level. Results show that a simultaneous increase in quantity and quality would increase the cognitive skills of Tanzanians by 31% and earnings by 13%. Roughly 40% of the current difference in mean wages between the Kenyan and Tanzanian workers can be accounted for by the lower cognitive skill of the Tanzanian labor force. Differences in the quality of education account for more than half the difference in the skill level, and thus in the mean earnings of the labor force.

This suggests that the opportunity cost to Tanzania of constraining the quantity and quality of secondary education has been substantial. The divergence between Kenya and Tanzania in educational policy in the late 1960s appears to have been a major factor in their diverging economic performance since then.

climate, the rigorous containment of unit costs; Section 5.1 indicates that, in sharp contrast to the situation at the primary level, far more is possible with cost containment than is being realized. As costs are contained and expansion can occur, it will be possible to enroll more females and other members of disadvantaged groups into secondary education; this is discussed in Section 5.2. Secondary education has often been turned to for the provision of occupation-specific skills, and Section 5.3 discusses the appropriateness of this task for secondary education, under differing country circumstances and in the context of the full range of alternatives for training. Section 5.4 discusses issues of financing and resource mobilization.

5.1 Meeting the demand for expansion by reducing unit costs

Secondary education is often expensive in Africa, in both absolute and relative terms (Annex Table A.18; also Table A.17). Ranging from below \$50 (Ghana and Guinea-Bissau) to above \$700 (Cote d'Ivoire and Tanzania), public recurrent expenditure per secondary-level student was \$223 in the median African country in 1983. This equalled 62% of per capita GNP in the median African country; again, the range was substantial, from around 20% in several countries (Ghana, Mauritius, Central African Republic, and Kenya) to well above 300% in one (Tanzania). What is spent on each secondary-level student in the median country could be used to educate four additional primary pupils at current levels of expenditure.

Further, public spending per student tends to be highest in those countries where enrollment ratios are the lowest. Annex Table C.8 compares unit costs and some of the key determinants of this variable across the three secondary enrollment groups (low, medium, and high enrollment countries).^{2/} In both absolute terms and with respect to per-student expenditure as a percentage of GNP per capita, the low secondary enrollment countries (LSECs) spend more on secondary education than do countries in the two higher groups. But most striking is the fact that secondary per-student costs relative to primary per-student costs are much higher in the LSECs than in the other two groups. In the typical LSEC, expenditure per student in secondary education is nine-to-ten times that in primary education, whereas a ratio just above three characterizes the rest of the region.

Given the tight limits on real public resources in Africa and the enormous competing demands of other education levels, especially primary, the key to satisfying the high demand for secondary education in Africa, especially in the LSECs but in most higher enrollment countries as well, lies in greater cost-sharing in secondary education combined with substantial reduction in unit costs. The first approach is the subject of the final section of this chapter. The second, treated here, inevitably involves measures that save on the input of teachers and reduce capital costs.

Chapter 4, on primary education, discussed issues of capital costs and also issues of teacher training, compensation, and utilization. It addressed the question of whether there exists much scope for economics in these potentially important areas. It concluded that, in many countries, there probably is scope for improved efficiency in teacher training and the use of lower-cost construction standards, for modest downward adjustments in average teacher salaries, and for modest increases in average class size and teacher utilization. Overall, however, the potential for cost containment in primary education through improved policies seems limited.

With one exception, this paper's conclusions concerning unit cost containment at the secondary level parallel those for primary education, and there is no need to repeat all of the analysis. As with primary education, different approaches to teacher training (relying much more on in-service, and less on preservice methods) and lower-cost construction standards are likely to prove cost-effective.

The exception concerns capital and teacher utilization, which offer much greater scope at the secondary level for unit cost reduction than at the primary. The median student-teacher ratio in primary education in sub-Saharan Africa is now 39, whereas it is only 23 in secondary. There is no pedagogical rationale for a difference of this magnitude although, in some cases, there may be a logistical one. Policies to increase student-teacher ratios at the secondary level could substantially reduce unit costs. The principal means that policymakers may wish to consider for raising this ratio include: larger classes; heavier teaching loads, obtainable through double-shifting and extensions of the school calendar; and multi- rather than single-subject specialization of teachers.

In brief, there is, at the secondary level, substantial potential in most countries for reducing unit costs by improving efficiency within the existing system. African leaders will need to implement firm policies in this regard. While a substantial part of the "savings" will need to be redirected to enhancing the provision of recurrent inputs (the inadequacy of instructional materials and consumable supplies is also a problem at the secondary level, though usually less of a problem than at the primary), some resources may be left for expansion. Over and above such measures, however, and unlike the situation in primary education, there is an added potential for achieving secondary level expansion through a dramatic reduction in unit costs, to perhaps one half their current levels. This possibility is the subject of the next two subsections, on distance education programs, and on the transition from a system of boarding to a system of day schools.

(a) Distance education: self-study schools and extramural programs

Given the extent of the unsatisfied demand for secondary education, and the fact that the pool of eligible primary school leavers grows inexorably larger every year, policies that incrementally increase student-teacher ratios and facilities utilization rates and reduce unit capital costs will never resolve completely the shortage of second-level places and eliminate the political pressure on African governments to expand the capacity of the system. To achieve a quantum increase in secondary enrollments, and to do so without suffering a commensurate increase in total costs or a serious decline in education quality, will require radical change in educational practice in sub-Saharan Africa. New modes of education are required to minimize the dependence of students on face-to-face contact with teachers for the learning that they acquire.

Distance education has been defined as "an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner" (Perraton, 1984, p.4). As such, the use of textbooks in conventional classrooms is one of the simplest, and obviously most proven examples of distance education. Properly designed distance education projects combine the strengths of different media -- "print for permanence, broadcasting for immediacy, face-to-face learning for individuality

and feedback" (Perraton, Block, Fryer, Spain, and Young, 1986, p. 6). The essence of distance education has to do with the recording, multiplication, and distribution of packaged teaching, using a small number of teachers to produce set course materials available in print, through broadcasts, or via some other medium other than direct contact with the original producers of the materials. Economies of scale, impossible where teacher-student ratios are fixed, or nearly fixed, becomes possible under such a system.

At the primary level, printed materials and broadcasting serve, for the most part, to enrich and enhance what is provided in classrooms, and, as such, distance methods nearly always represent an add-on cost. At the secondary level and above, however, including pre-service training and, especially, in-service upgrading of primary school teachers, students have already acquired the basic study skills and maturity that will permit them to make use of a variety of educational media, on their own, with a minimum of individualized supervision. Beginning at this level, the potential of distance education to reduce costs by substituting for the input of highly skilled teacher time makes this a very attractive alternative to conventional instruction for low-income countries, including especially those of sub-Saharan Africa. Table 5.2 describes two modes of distance education that can be used to save on teacher costs -- "self-study schools" and "extramural programs." It also contrasts these to the "enrichment" and "quality enhancement" modes, which do not result in reduced costs typically.

[Table 5.2]

Distance education is already playing a role in widening the opportunities for secondary schooling in a number of African countries. Several Anglophone African countries, Zambia being a good example, have established government or university-based extramural programs. In several Francophone countries, too, distance-teaching programs have been set up, modelled on the French Centre National de Tele-Enseignement. One motivation for the establishment of such colleges has been the desire to reduce the amount of foreign exchange spent on correspondence courses supplied from Europe.

Often initially, the intended target group for the distance education programs consisted of people with primary education, and perhaps incomplete secondary education, employed in the formal wage sector and needing qualifications for promotion. Very soon, however, the programs began to attract, in addition to these established individuals, very recent primary school leavers who had not succeeded in gaining admission to secondary school and were not yet gainfully employed. Because of the selection process at work, the students enrolled in the distance education programs were, on average, less academically able than those enrolled in the regular schools. Accordingly, in order to provide increased support for such students and raise their chances of passing national examinations, some countries moved to supplement the correspondence methods by setting up study centers in which students could receive instruction by radio and work on their correspondence materials, during scheduled times, under the guidance of supervisors. In this fashion, a number of extramural programs, relying exclusively on correspondence and broadcasting methods, have grown into self-study schools over time.

The classroom supervisors in self-study secondary schools are not usually secondary school teachers, though some may have qualified as primary school teachers. Typically, they lack the knowledge to teach the students.

Table 5.2 Three Modes of Distance Education

Mode	Description	Costs and Effects
1. Enrichment and enhancement	Radio or television broadcasts are provided in one or two subjects for between 15 minutes and 2 1/2 hours per week. Many countries, including Ethiopia and Kenya, use limited amounts of time for enrichment. Alternatively, more substantial use sometimes carries the main burden of instruction in a subject to enhance quality (see Box 4.2 on "interactive radio").	The enrichment use of radio is quite inexpensive but has relatively little impact on learning. More substantial use, as in interactive radio, increases costs, but produces strong positive effects on mathematics and national language learning. Enrichment and enhancement are particularly suitable at the primary level.
2. Self-study schools	Students attend "school" but classes are led by an older student or community member; radio or television carries the main burden of classroom instruction in all subjects, and students are expected to rely heavily on their textbooks. The world's largest educational institution -- the Chinese Television University -- is based essentially on this model, emphasizing post-secondary instruction. So, too, is the Malawi Correspondence College at the secondary level (see Box 5.2).	Self-study schools reduce cost by 20% to 30% (or more if they take advantage of classroom space from regular schools after hours). They can extend access by allowing for very small schools in individual communities, which is particularly important for increasing female access and for reducing reliance on boarding schools. The costs of television are higher than those associated with radio, and the gains in learning outcomes are minimal.
3. Extramural Programs	Extramural programs rely principally on print to convey instruction but, to the extent feasible, they frequently supplement print with radio or TV broadcasts and tutorial meetings (which are particularly important where postal systems hinder exchange of assignments). The British Open University is perhaps the best-known extramural program today; the University of Zambia operates a small-scale (but long-established) extramural program, and Tanzania had marked success with correspondence education for in-service teacher training (see Box 4.1).	The potential for cost savings with extramural programs is even greater, naturally, than for self-study schools. The cost per student per course may be expected to be in the range of 10% to 25% of conventional instruction. Extramural programs have the added advantage of allowing students to pursue their studies while employed. Their disadvantage is the demand they make on student motivation (although this is arguably a good criterion for student selection). Extramural programs have their main roles in higher and in-service education, but they are also an option at the secondary level.

They are, however, able to help students with the organization of their studies and to advise them on how and where to seek further assistance. The Malawi Correspondence College provides an example of a distance-teaching program that was launched to meet the needs of out-of-school individuals and has since been adapted to create an in-school alternative. Students in this program can choose to study part-time or full-time, relying heavily on radio broadcasts and self-study printed materials, but enjoying the benefits of a classroom in which to study and a supervisor to oversee their work (see Box 5.2).

[Box 5.2]

The existence of extramural programs like the one in Zambia and self-study schools like the Malawi Correspondence College can be seen as ways of promoting equity in education, in that they provide a second chance for those who would not otherwise have access to secondary education. But the evidence suggests, unsurprisingly, that this is a more difficult route to secondary qualifications than the conventional one. Those who do well in their primary-school leaving examination now go to regular schools. Those who do less well must settle for a method of study intrinsically more difficult to follow. If a country wished to promote full equity while at the same time expanding secondary education by taking advantage of the low costs of distance education, then one might rather envisage a system in which all second-level students did some of their study in a distance education mode (preferably in self-study schools making full use of printed textbooks, workbooks, and a marking service), and all did some in regular schools, face-to-face with qualified teachers. Alternatively, students in regular schools might be charged some fraction -- 50%, say -- of the additional cost of regular schools as compared with the cost of self-study schools or extramural programs. The most likely pattern of use, however, is for self-study schools to serve smaller communities during school hours and, in urban areas, to be used to allow evening or weekend study (in existing school facilities) for individuals already employed.

(b) Day schools

Transition from a system of boarding to a system of day secondary schools is another approach to reducing both the capital and recurrent costs of secondary education. Although the savings would be less dramatic than those achieved by moving to a full-fledged distance education system, they can nevertheless be substantial in countries where boarding schools are now prevalent. The advantages in favor of small day schools that cater for individual communities over larger boarding schools that draw students from greater distances are stronger at the junior-secondary than at the senior-secondary level. Especially when implemented in conjunction with distance education, which reduces the need for large boarding complexes at any level, a system of small day schools can significantly reduce the unit costs of secondary education.

Boarding schools are sometimes justified on nation-building grounds in that they bring together students from different regional and ethnic backgrounds. In addition, in terms of costs, they may offer economies of scale as regards teacher utilization, and the existence of such schools clearly obviates the daily commuting costs associated with day schools. Despite these arguable advantages, however, the housing and feeding expenses in boarding schools are, in some African countries, as high as all of the instructional

Box 5.2 AN ALTERNATIVE ROUTE TO SECONDARY QUALIFICATIONS IN MALAWI

In 1965 the government of Malawi established an alternative to the formal secondary education system — the Malawi Correspondence College (MCC). It was created in response to demand for secondary schooling that could not be met by the formal system, where access was limited to 9 percent of primary school graduates. MCC evolved gradually over a twenty-year period as the government recognized it as a relatively inexpensive way to respond to the growing demand for secondary education. The recurrent cost per student in a MCC study center is less than one-fifth of the recurrent cost of a student in a Government secondary school, and the cost per graduate is slightly less than the cost per secondary school graduate.

The system is based on radio, correspondence, and the use of under-qualified teachers working with students in special study centers and in regular secondary schools at night. The only entrance requirements are possession of a primary school-leaving certificate and payment of a fee for correspondence materials. More than 80% of MCC students enroll at the Junior secondary level, and the rest at the senior secondary level. Although MCC centers were originally designed to serve working youths on a part-time basis, over 70% of all students are now studying in classrooms for over five hours a day. By 1985 MCC was enrolling more than 10,000 new students per year and providing 15 hours of radio programs per week, correspondence materials, and a marking service for about 19,000 active students.

MCC centers are generally located in simple buildings, often constructed by the community next to a primary school, and are frequently accompanied by simple housing facilities for students and teachers. In some cases, centers make use of primary school buildings that are available during the afternoon and evening hours. Although teachers at the centers may have only the primary teaching certificate, they have been selected by local supervisors on the basis of their skills and interests. Center teachers, who are paid through local education authorities, are responsible for overall supervision of the classes. MCC also provides classes, in regular secondary schools after hours. These classes are often taught by regular secondary school teachers, who receive supplementary payment through MCC.

Overall pass rates for MCC candidates on the National Junior Certificate Examination have varied between 10% and 22% over the past few years. These pass rates are low compared with regular secondary schools, but they are satisfactory in the light of MCC's much lower admissions standards.

The program's attractiveness to students was enhanced when the Government made available places at regular senior secondary schools for all MCC students passing a full Junior Certificate in one sitting, and places at the University for all those who passed a full Malawi Certificate of Education in one sitting. This policy has now changed somewhat, and MCC graduates have to compete on an equal footing with graduates of the regular secondary schools.

costs. Since in many African countries these extra costs are fully subsidized, boarding schools in fact shift to the public education budget the basic welfare costs of children that families have an obligation to bear. The result is that government expenditures per student tend to be much higher in boarding schools than in day schools, by as much as three and a half times in a country like Somalia; with a given budget government can offer many fewer places. Table 5.3 shows a recent estimate of the relative costs of day and boarding schools in Malawi and compares them both to the costs of the Malawi Correspondence College. Also, in addition to the monetary costs, there can be serious social costs associated with young students, especially female students, living away from home.

[Table 5.3]

From an equity perspective, there is, of course, the worry that exclusive reliance on day schools reduces the access of rural families (and, conversely, increases the access of urban families) to secondary schooling. Thus, the transition from a system of boarding to a system of day schools becomes increasingly feasible in any country over time as the network of secondary schools grows larger. Widespread introduction of small radio correspondence schools would, of course, facilitate this transition. In places where boarding facilities are still regarded as necessary for reasons of equity, the most equitable decision of all is to charge parents the full costs of boarding and feeding, with special provisions being made to reduce the fees imposed on academically able students from poor homes, since this policy generates revenue and makes possible a larger total number of students in the system.

* * *

This section has addressed the question of whether efficiency at the secondary level can be increased sufficiently both to make possible the necessary levels of non-salary recurrent inputs (books and supplies) and to achieve significant capacity expansion. The conclusion is that substantial economies are possible -- economies in the operation of regular schools, economies from reductions in boarding, and most significant, economies from the creation of distance education systems combining radio and correspondence techniques that would allow expansion of reasonable quality secondary education

Table 5.3 Per Student Costs of Day Schools, Boarding Schools, and Self-Study Schools for Secondary Education in Malawi

	(a)	(b)	(c)	(d=b+c)	
	Capital cost (K)	Annualized capital cost (K/year)	Annual recurrent cost (K/year)	<u>Total annual cost</u> (K/year)	Index
Boarding schools	5,800	530	750	1,280	7.5
Day schools	3,880	360	204	564	3.3
Self-study schools <u>a/</u>	1,180	114	56	170	1.0

Note: Cost figures are in 1984 Kwacha. Calculations do not include the opportunity cost of student time, but the boarding school costs do include food. Capital costs include construction (depreciated over 30 years, and furniture and equipment (7 years) and are annualized using a 7% discount rate.

a/ The Malawi Correspondence College.

to many more communities than can be reached in any other way for the same price. This leads to:

Recommendation 3. Significant expansion in secondary and tertiary education, especially so as to reach far more females and more individuals from remote rural areas and disadvantaged social classes, will not be possible in most African countries without policies that substantially reduce unit costs. Fortunately, there exists at these levels substantial scope for reducing costs. The key is to identify and implement new instructional modes that rely much more heavily than in the past on the input of student time and motivation and that economize on expensive capital inputs and teacher time. Increased availability and use of self-study schools and extramural programs, relying heavily on varying combinations of radio broadcasts and correspondence materials, can dramatically reduce costs by lowering the requirement for skilled teachers and by allowing the extension of educational services even to very small communities, thereby obviating the need for expensive boarding facilities. Increased privatization can also be expected to lower unit costs and enhance efficiency in education to the extent that individuals are more cost-conscious when spending their own funds than when making use of a "free" public service.

5.2 Issues of equity: increased participation of females

Beyond this general support for expanding access to secondary education, African nations should give serious consideration to policies designed to remedy existing inequalities in school participation. Females comprise the largest underrepresented group.^{3/}

Although female enrollments have grown steadily in proportion to totals in most African countries since independence, this is not true in every country -- the female-male ratio has actually fallen in the three former Portuguese colonies, and it has been virtually stagnant in four other countries (Burundi, Rwanda, Togo, and Benin). Even where substantial progress has been made, female enrollments continue to lag behind male enrollments.^{4/}

In regional terms, the lag is no longer particularly pronounced at the first level -- girls comprise 44% of primary enrollments in Africa today (as compared with 43% in Asia and 48% in Latin America). The difference between male and female enrollments remains high, however, in post-primary education. At the secondary level, females comprise 34% of enrollments (as compared with 39% in Asia and 50% in Latin America), and at the tertiary, only 21% (as compared with 33% and 45%). Moreover, for those females who do manage to enroll, repetition and dropout rates are somewhat higher for them in many African countries than for males, which is contrary to the situation in most other parts of the world.

The absence of equal access to educational services is not just inequitable. It is also inefficient if those less able to benefit from the opportunity gain access to education ahead of those more able. The fact that women in Africa spend, on the average, less of their lives in wage employment than do men may have convinced some observers that the return on investment in girls' education is smaller than in boys'.

This conclusion ignores, however, the major role of African women in self-employment activities, and it ignores the now proven links between mothers' education and the health and educability of their children, and associated with these, the connection between education and reduced numbers of children (see Section 2.3). Many studies have shown female secondary education, and the final years of primary education, to have the greatest impact on these household productivity variables. Moreover, a recent study that estimates monetary rates of return to investment in education in Botswana reports higher rates for the education of females than for the education of males, except in the most traditional parts of the country where women seldom enter the paid labor force.

Given these findings on the important returns to girls' education, special efforts should be made, particularly at the secondary level but extending to the tertiary, to raise female enrollments. It may not be obvious, however, how policymakers can influence the relative participation of females vis-a-vis males. Rarely in Africa would it be correct to attribute the lag in female enrollments explicitly to government policy, a notable exception being the common policy of expelling pregnant girls. School places are, for the most part, open to both sexes.

To identify the principal causes of differences in male and female participation rates, one needs to look primarily at demand-side factors. Sometimes when the distance from home to school is very far, as in many rural areas, parents are afraid for their daughters to walk alone, and a girl may be kept out of school unless there is someone, especially an older brother, to accompany her. For this reason, too, the opportunities that distance education provides for geographical dispersion of secondary educational opportunity becomes an important consideration.

Moreover, when a choice must be made between sending a son or a daughter to school, African parents are like parents in many other parts of the world -- most often they will send the son. Unfortunately, the important social benefits derived from female education are not likely to have much impact on a family's private investment decisions. In patrilineal societies, the opportunity costs of a daughter's time when she is attending school, and any other costs such as school fees, are borne by her parents, whereas the benefits of her education are thought to accrue principally to her future husband's family. Recently, in some areas where "brideprice" has been paid traditionally to the family of a married woman by the family of her husband, studies have shown the emergence of a positive relationship between the brideprice commanded and a woman's educational attainment. Here is an excellent example of how families will try to "internalize" the returns to their educational investments.

A key issue from the policy perspective is how to bring the private decisions regarding the education of girls in line with what is best for society as a whole. Nothing is likely to change unless explicit attention is given to this goal, and there are, indeed, policy measures that will increase the willingness of families to allow daughters to attend school.

Small, community-based schools (whether relying on distance education or not) will tend to attract girls more readily than larger schools located in urban centers and at greater average distances from homes; although smaller conventional schools may imply higher unit costs, this is not necessarily the

case, at least from a fiscal perspective, especially if larger schools tend to include boarding facilities whereas smaller schools do not. Increasing the number of female teachers may also attract more girls, especially in Islamic areas. Governments can reduce the private costs of girls' education relative to boys' by, for example, providing girls with free books and other instructional materials, charging them lower tuition fees, or recovering less of the cost of boarding and welfare services from girls' families than from boys'. Finally, governments can provide a transfer payment incentive in the form of a school meal program. Such programs have been shown to be successful in increasing enrollments, especially among girls.

5.3 Training for vocational competence

Of central importance to a country's total factor productivity and economic growth is the stock of human capital embodied in the country's working population. Investment in human capital includes, in addition to the learning of general cognitive skills and maintenance of good health, the acquisition of specific, job-related skills and the development of reliable work habits and positive attitudes towards work of all kinds. All of these attributes are important to an individual's successful integration into the labor market and lifetime performance at work.

There is little, if any, disagreement with the proposition that the teaching of general cognitive skills such as reading, writing, mathematics, and scientific understanding is accomplished most efficiently within a formal school setting. Virtually every society on earth has developed a school system for the purpose of transferring these general skills, which are important, not only in their own right for individual self-fulfillment, but also as the foundation upon which all occupation-specific attributes are subsequently built. Although there is no disagreement, either, about the importance of occupation-specific skills, positive attitudes to the world of work, and good work habits, there remains disagreement as to the most efficient timing, methods, and venue to be used for imparting these, more narrowly vocational attributes. The salient questions that policymakers may ask include the following: Is it most cost-effective for the individual to acquire the necessary job-related skills when in school; or to do so after completion of school but before taking a job; or to wait and learn the necessary skills after securing a job? For individuals already employed, should training be industry-based, i.e., in regional training centers serving large numbers of workers, or firm-based? What is the optimal mix of theoretical instruction and practical work experience?

Different countries have successfully adopted different strategies for transferring occupation-specific skills to members of the work force. The cost-effectiveness of different skills-acquisition modes depends on the existence (or nonexistence) of many complementary factors; what works well in one country may be poorly suited to another. Moreover, specific programs may require a period of time in which to evolve and mature before they serve well the goals for which they were intended; in some instances, it may be more cost-effective to modify existing institutions rather than to invent new ones.

Finally, and importantly, whereas certain broad-based occupational skills (e.g., bookkeeping, typing, accounting) might be acquired cost-effectively within schools because these skills are widely applicable throughout the economy and because the cost of teaching them is comparatively

modest, the acquisition of other, more specialized and technical skills might be provided more cheaply and effectively within firms, where the equipment and expertise are already present and where the identification of needed skills is driven by production needs. Between these two extremes, there are examples in many African countries of industries consisting of many small firms none of which is sufficiently large or developed to provide effective skills training; here the answer is likely to be the establishment of industrial training centers, typically operating under government control but ideally financed through a system of taxing the beneficiaries in proportion to the benefits received. As a rule-of-thumb, schools should be asked to provide general skills, applicable in a wide range of jobs and household situations; training centers can provide more specific skills, applicable within particular occupations; and firms are best at providing job-specific skills.

From the early days of colonialism in Africa, there has been pressure to increase the vocational specificity of the school curriculum. The rationale for vocationalization at the secondary level rests on the observation that, for most secondary school students, this will be their last exposure to formal education; it should therefore, according to the argument, provide the recipients with specific vocational attributes demanded in the labor market, thereby presenting them with better paying and more immediate employment prospects upon school completion. This rationale is put forward most strongly in countries where the industrial base is still very small and where employers have abandoned traditional apprenticeship practices -- i.e., where the out-of-school paths to the acquisition of technical skills seem few. In such circumstances, the formal education system, it is reasoned, has an obligation to impart attitudes and specific job skills that prepare students for the working life they will soon confront. In the post-colonial era, many African governments have accepted this reasoning.

One approach to the vocationalization of secondary education has been to set up a self-contained stream of technical, agricultural, and commercial schools that parallels the general stream; this might be called the "specialized vocational school approach." A second approach ("the diversified secondary school approach") has been to insert into the core curriculum a range of vocational or (as called in some descriptions of diversified secondary education) "pre-vocational" courses. Both approaches have been tried extensively in Africa and have received substantial support from international donors, including the World Bank.

Rigorous evaluation of both modes of vocational education has not been common in Africa. There is a clear need to examine how different types of general and vocationally specific education have performed in relation to their costs, and to examine how they have been sustained and their functions continued in recent years under increasingly austere financial conditions. Such studies need to be conducted several years after the institutions have been established and after they have ceased being dependent (if they were to begin with) upon the support of foreign donors. Also, because of the time it takes for graduates to find regular work, the assessment through tracer studies of the labor market experience of graduates should, ideally, not be conducted until some years after course completion.

Studies along these lines are now being undertaken, some under the auspices of the World Bank. Indeed, the Bank is planning to produce a major policy paper on the subject of vocational education and training before the end

of the 1980s. In the meantime, there are some few findings that can be reported now on the subject. These will be reported in what follows, not with any intent to show that in-school programs for teaching vocationally specific skills should be avoided by all countries and under all circumstances, but simply to raise warning flags that policymakers may prudently bear in mind when the introduction or expansion of such programs is being considered.

First, there is an apparent tendency, particularly in developing countries, to overstate the need for pre-employment occupation-specific skills acquisition. Most entry-level jobs require relatively little in the way of specific skills, and even in those cases where the reverse is true, adequate training can usually be provided by the employer through on-the-job training, alone or in combination with classroom instruction in a variety of ways. There is, of course, the problem of how, in very poor economies, to provide skills for an industry that is only emergent or, as yet, nonexistent. This, however, is a classic "chicken and egg" problem. Just wishing for the existence of a modern, "high-tech" industry will not make it happen, nor unfortunately will the teaching of "high-tech" skills, in the absence of many (other) pre-conditions necessary for the industry's development.

Second, there is a tendency to overstate the power of schools to shape attitudes and behavior in ways that would facilitate the transition from school to work. It is certainly true that certain behavioral characteristics, such as punctuality, persistence, and the willingness to accept instruction, are emphasized in schools, and that the very same characteristics are rewarded in the workplace. If schools do not actually impart these desired behaviors, at least they select for them. There is, however, scant evidence to suggest that training in preparation for a particular occupation will, in and of itself, predispose an individual to seek employment in that occupation; the occupation must offer other (economic) incentives as well that attract the individual to it. Indeed, the history of African education is replete with examples of vocational school programs whose principal attraction can be shown to have been the "second chance" they offered for students to re-enter the academic stream and, thereby, qualify for high-paying jobs in occupations other than those for which the vocational schools were actually designed to provide training. Moreover, the attitudes that are actually learned in school-based vocational programs are not always appropriate ones. For example, the credentialed graduates of such programs may possess unrealistic expectations concerning pay and status for entry-level personnel.

Third, there is mounting evidence to show that, for many occupation-specific skills categories, the training provided in schools is generally "less useful" (i.e., the market demand for it is less strong) than training provided on the job or in specialized training centers. When this is the case, the reasons for it are usually easy to comprehend. Schools have difficulty in recruiting and retaining competent instructors, especially in those fields where market demand is strongest; school administrators are constrained generally from offering differential compensation to instructors in different fields. Being separate from the industries for which they train, vocational schools generally find it difficult to provide students with realistic work experience. For the same reason, instructors find their own skills falling quickly out-of-date. Equipment, too, tends to become technically obsolete, especially in times of fiscal austerity, which puts budgetary pressure on schools that might not be felt in industry. Unlike much industry, schools are slow to adjust to changing market conditions and change

the mix of skills provided. Even when good labor market information is transmitted to those who run training establishments, curriculum changes are inherently difficult to effect within the formal education system.

Although bureaucratic inertia seems to characterize most technical and vocational school systems in most developing countries, this is not to say that it could not be overcome, given a different set of incentives for school administrators. West Germany and Japan, both industrialized economies and extraordinarily successful ones, rely on distinctly different systems for the transferral of technical and vocational skills. Japan's is a system of quite broad general education followed by heavy private (enterprise) investment in in-service training, whereas Germany puts considerably more emphasis on pre-employment training within the formal school system. Both systems result in trained people who bring a high level of technical competence to the job. But both systems are capable also of adapting swiftly to change, and herein probably lies the secret of their success.

Finally, policymakers should remember that most attempts to vocationalize the education curriculum, in Africa at least, have proven to be expensive relative to the cost of providing general education. Some of the difference in unit costs is attributable to the fact that many vocational education institutions and programs in Africa have not been expanded sufficiently to benefit from eventual scale economies. Beyond this, however, vocational education is (in most industrial fields and, to a much lesser extent, commercial fields as well) inherently more expensive than general education because of its greater reliance on specialized equipment, parts, and consumable supplies and its requirement for smaller classes.

At the secondary level, the cost of specialized vocational schools has been at least twice as much per student in many African countries as the cost per student in general education, and more than 15 times as much in some countries. A recent evaluation of the World Bank's experience with the alternative approach to vocationalization -- diversified secondary schools, which combine vocational and academic subjects -- finds that unit costs, while not as high as in specialized vocational schools, are still higher under a diversified curriculum than under a general curriculum. In spite of the higher costs, however, the employment and earnings experience of diversified secondary school graduates seems much the same as for those who graduate from the general curriculum stream, although the recent study did not follow students for many years after graduation. If further research corroborates these findings, then on the face of it, it would seem that diversified secondary schools are not worth their higher costs. This is a sad lesson for the many African countries that invested in such programs and for the technical experts (often from the international donor community) who advised them, but a lesson nonetheless, and one now to be heeded as policymakers consider directions for the future.

Because of the high costs and apparent lack of vocational relevance of both these school-based approaches to skills acquisition, there is an urgent need to develop (through incentive schemes and technical assistance) industry's capacity to provide on-the-job training and other firm-based skills development programs. Experience with these should be evaluated with reference to all of the alternatives, including (post-primary and post-secondary) industrial training centers.

While additional information is being gathered on the relative labor-market outcomes of different types of education and training, policymakers should at least be aware of past differences in per student costs between general and vocational secondary education and recognize that a policy of increased vocationalization of the curriculum implies, inevitably, that fewer students can be given access to education. Governments interested in laying the groundwork for a more technically oriented economy in the future may also wish to consider placing heavy emphasis on general mathematics and scientific skills in the secondary and post-secondary curriculum. These tend to be relatively inexpensive to provide and are likely to prove more conducive to economic growth than an emphasis on in-school vocational education.

At the same time, policymakers should be exploring all of the macroeconomic policy instruments that may help to raise the volume of training provided throughout the economy. Out-of-school training, directed at individuals already in the labor force, has two very important advantages as compared with in-school vocational education. First, it has the potential of reaching all workers -- those who have never attended secondary schools as well as the minority (in most African countries) of workers who have. Second, it has the potential of continuing throughout an individual's entire working life, thereby allowing each individual to renew some skills as these become "rusty", and to replace others as these become obsolete. The macroeconomic policy instruments whereby government can encourage training for in-service workers are many. Investment codes, wage structure regulations, tax write-offs, and apprenticeship guidelines are examples of the instruments through which government can enhance the incentives for firms to offer training, and for individuals to seek it.

5.4 Financing secondary education and training

Given the large unmet demand for secondary school places, a natural starting point for promoting the further growth of the sub-sector is to raise student fees. Another, indirect way for governments to expand secondary enrollments without increasing the burden on the public budget is to encourage the development of private schools, i.e., schools that are managed by nongovernment authorities. This section discusses these two approaches to increased cost sharing in secondary education and concludes with a discussion of financing arrangements for training.

(a) Cost-sharing in public secondary schools

Current levels of subsidization in secondary education are high in sub-Saharan Africa. This is especially so in the Francophone countries where, in most cases, fees were never charged, but also in Anglophone Africa, where fees have declined typically as a percentage of full educational costs in the years since independence.

Obviously, the introduction or raising of fees can be used to relieve the public financial burden of providing secondary education. As a by-product, this policy reduces the difficult administrative chore that educational authorities now face of having to ration a limited number of school places among a much larger number of academically qualified applicants. Evidence from

countries that have recently raised student fees indicates that the dropout of those already enrolled is smaller than might be anticipated, and that the impact on overall enrollment tends to be nil, as those who drop out are replaced by others wishing to enroll.

It was concluded from a recent study in Malawi that the 1982 fee of Kwacha 101 (K30 for tuition and K71 for boarding), which represented cost recovery of about 40% at the time, could be increased substantially before this policy would eliminate all excess demand for places. The additional places that could be financed by this change alone would be somewhere (depending on the exact price elasticity of demand assumed) between 5,000 and 11,000 students, or between 20% and 50% of the secondary enrollment at the time.

To the extent that higher fees would discourage students with lesser academic ability, and hence, lower probability of success, from enrolling in secondary education, the policy of increasing fees would increase efficiency within the sub-sector. There may be concern, however, about the policy's impact on equity, since the higher fees will tend to increase the ratio of high-income to low-income applicants of any given ability level. This would simply exacerbate the situation that exists today, wherein the substantial across-the-board subsidies that go to secondary education benefit high- and middle-income groups disproportionately, since enrollments are already skewed towards these groups.

The adverse equity effects of the fees charged now, and of any future increase in fees, can be offset by the provision of scholarships for talented low-income students. It is not inconsistent to endorse a general policy that devolves a higher proportion of secondary education costs onto users, while advocating that the fees charged low-income students remain the same as before or be reduced.

Even in countries where politicians have taken a stand against the imposition of user fees in public education as a matter of principle, it is still possible for government to pass on more of the costs currently shouldered by the ministry of education. First, if care is taken to distinguish between the educational services and other (e.g., welfare, boarding, recreational) services that secondary schools provide clients, it may be possible to charge for the latter without violating the government's principle of "free" public education. Moreover, education authorities can rely, more so than in the past, on community participation in the construction and maintenance of school buildings. That communities should assume a major responsibility for the capital costs of primary education is already widely accepted in Africa, and the process of transferring this burden from central government to local authorities is already quite far along in many countries as was discussed in Chapter 4. A parallel process at the secondary education level is now under way in a number of countries (see Box 5.3 for an example of this in Zambia).

[Box 5.3]

Another cost-recovery mechanism that may deserve more use than given at present is to open secondary schools in more populated areas to evening students. Although this system would serve fewer additional students than a full second shift in the afternoons, it has the merit of providing secondary school access to young people already working, whose fees can be used to give an incentive to regular, day-time teachers to return in the evenings.

Box 5.3 COMMUNITY FINANCING OF SECONDARY SCHOOLS IN ZAMBIA

Since independence in 1964, the government of Zambia has worked to achieve basic education for all children. In support of this policy, during the 1960s the government phased out all school fees, and provided free board and lodging to all secondary boarding school students. Revenue from mineral export sales met these costs. However, by the mid-1970s Zambia faced a dramatic economic downturn, which led to severe reductions in public expenditures for education.

As public allocations to education declined over the past 10 years or so, a number of actions were taken to pick up the slack. In order to increase access to secondary school places, the government in 1975 began to encourage individuals and organizations to operate private fee-paying schools. By the mid-1980s the government also instituted a policy that required all non-Zambians to pay tuition and boarding fees toward the cost of their children's education in the country, and announced that Parent-Teacher Associations would be allowed to levy a boarding supplement on pupils to improve children's diets.

A key element in mobilizing non-public resources to support education was official encouragement for the establishment of "Self-Help" schools during the late 1970s. Community reaction has been positive: between 1981 and 1984, 62 Self-Help secondary schools were created. As a result of the cash, material, and labor contributions provided by local communities, access to secondary education has thus been greatly expanded. Moreover, private contributions have been made in a variety of other ways. For example, some communities offer accommodation for weekly boarders in residents' huts while school dormitories are being constructed by the community. Others construct houses for teachers, and in one case the PTA has paid rent to accommodate teachers. Further, pupils in these schools are levied to help finance projects and programs.

In government and grant-aided schools, some educational recurrent expenditures from the public budget have unofficially been transferred to parents or other recipients of educational services. Parents are now meeting the costs of textbooks, exercise books, rulers, mathematical sets, erasers and other materials, and school uniforms. For boarding school pupils, parents pay for bedding, soap and other toiletries. Parents also contribute to cover the cost of such items as entertainment and sports, school development and maintenance, and production unit activities.

While such private contributions have been essential to the continued provision of education for Zambian children, the government's response has been ambivalent. No guidelines have been issued regarding which items schools may charge parents for, and the determination of levels of contributions to various funds has been left largely to school authorities and their PTAs. Some fear that the absence of government monitoring might lead to financial mismanagement by unscrupulous school heads and PTAs and argue that clear-cut official policy is demanded. In light of Zambia's continuing economic difficulties and the growth of the school-age population, however, government responsibility for education is likely to decline further and private support to take on an increasingly important role in the financing of education.

(b) The role of private schools

"Private" schools include those that are sponsored by religious or other special-interest groups, schools run by labor organizations or business enterprises, private proprietary schools, and fully or semi-autonomous community schools. African governments took over the running of many private schools in the years soon after independence. Nevertheless, private-school students still comprised more than 25% of all second-level enrollments in 1970. By 1983 this number had decreased to fewer than 15%. The usual practice in Africa has been to subject education to strict controls, and these have tended to stifle private provision and also to prevent individual providers from responding to the changing needs of their constituent populations.

The nature of government control over private education ranges from outright prohibition in a few countries, to a long list of regulations covering such things as the level of fees, qualification of teachers and content of curricula in most countries. On the one hand, it is argued that such regulations are necessary to protect families from choosing unwittingly an inferior-quality private-sector alternative to public schools, and on the other hand, that they are needed to prevent the development of a high-priced, superior-quality educational alternative, which only the rich can afford.

Whatever the merits of these opposing arguments, many countries seem willing today, in the light of the financial situation that exists, to reconsider their policies vis-a-vis private education. An easing of the restrictions that have been imposed will encourage new providers to enter the educational marketplace. The harambee (or self-help) secondary school movement in Kenya contributed importantly to the rapid growth of secondary enrollments in this country during the latter half of the 1960s and early 1970s (over 15% annual growth). By way of comparison, in neighboring Tanzania the expansion of secondary education was deliberately curtailed, and a recent study attributes at least some of the differences in present economic vitality between these two countries to the earlier differences in their policies with regard to secondary education (Box 5.1, above).

It is often assumed that privatization in the African context should involve some type of accreditation system imposed by government. Such systems, however, are difficult to implement and, indeed, are unreliable in that they rely on external surrogates for educational quality such as teachers' qualifications, student-teacher ratios, and school building standards. National or regional examinations can be used as powerful vehicles for shaping curricula and for promoting (and not simply monitoring) quality in education. Results on examinations constitute a signal to consumers that they can use as a basis for choosing among educational alternatives. When alternatives are available, schools cannot take students for granted. Competition for students will tend to encourage experimentation in public and private schools alike, and the result should be increased efficiency in the education system.

To minimize differences in the private educational costs encountered by households sending children to different kinds of schools, governments may choose to subsidize partially private education to the same (presumably reduced) extent that it does public education. In many African countries today, there exists a wide range of financial arrangements, from the public schools, where subsidies are usually the highest, to partially aided private schools, to completely "unaided" private schools.

(c) Financing training

In general, consideration should be given to structures for governance (ownership) of vocational training that parallels the patterns used to finance it. Where training is supported through taxes and other levies on employing enterprises, these enterprises should have a major role in the management of expenditures. Frequently, this will mean ownership and management of training institutions by individual large enterprises or by associations of employers with common skills needs. A similar model can be applied to public sector institutions sufficiently large to justify ownership and management of specialized training centers and schools.

Relaxed regulation of proprietary schools and centers for teaching vocationally specific skills is a second option. Again, while proprietary schools have functioned well in other contexts, it is not clear how well they might function in many African situations. In the services sector, where capitalization costs are relatively low, such policies may be more productive than in training for industry. In agriculture, where consumer incomes are relatively low, subsidized training managed by public agencies may continue to be required.

Where proprietary schools generate revenues through the marketing of training services, management of effective institutions is heavily influenced by consumer preferences as informed by government accreditation. Institutions that fail to meet quality standards or cannot provide training at acceptable prices will not long survive. Such structures increase the responsiveness of training curricula and costs to employment demand, while structures that finance and govern independent of demand for skills are generally less responsive, thereby lowering training efficiency.

Public financing and management of vocational training institutions may continue to be the most feasible option in economies or skill areas where private enterprises are relatively small and lacking in management and training capacity. In such cases economies of scale may be realized through training institutions serving a number of firms, particularly when schools and training centers are located in close proximity to employers. Institutional arrangements that give small employers a voice in the curricula and management of these training institutions in return for even modest financial contributions should be considered, both to increase immediate responsiveness of training to demand and to provide a starting point for eventually stronger roles for enterprises.

Policies that alter the structure of training coordination require investments in implementation. Transferring ownership of specialized secondary vocational schools from the ministry of education to another organization, for example, involves transition costs for the establishment of new coordinating procedures and units, and for the implementation training required both in schools and in the new structural home. Some of these costs represent a shift of costs from one organization to another; others are start-up costs that will disappear beyond the initial period. Cost savings may develop eventually as the new system becomes increasingly efficient.

Chapter 6. PREPARATION FOR RESPONSIBILITY: HIGHER EDUCATION

Higher education is of paramount importance in the process of African development. High-level manpower must be trained and quality research carried out if development policies are to be correctly formulated, programs appropriately planned, and projects effectively implemented. Preparation of and support for those in positions of responsibility -- in government, in business, and in the professions -- is the central and essential role of the continent's universities.

The leadership of the region's institutions of higher learning have spoken forcefully and eloquently at two important conferences -- in Mbabane in 1985 and Harare in 1987 -- about the urgent need for African universities to produce graduates who can tackle the complex problems that confront the continent. Pronouncements at these meetings were consistent with the findings of the Fifth Conference of Ministers of Education and Those Responsible for Economic Planning in African Member States (Harare, 1982) and are in line with the aspirations and African-articulated policy framework enunciated in the Lagos Plan of Action, elaborated in Africa's Priority Programme for Economic Recovery (1986-1990), and reiterated in the U.N. Programme of Action for African Economic Recovery and Development (1986-1990).

University programs of research and teaching that support the rehabilitation and further development of the agricultural sector are of great importance. Many applied areas, such as soil and water conservation and drought and desertification control, and the natural science and engineering disciplines upon which progress in all such applied areas depends are central to the task of strengthening Africa's agricultural base, and they demand immediate attention. Of equal importance is the contribution of institutions of higher learning to public administration, the governments' capacity to plan and direct the process of development. For this, they must produce high quality manpower in the social science and management disciplines, conduct timely research, and provide advisory services in such fields as economic planning, finance (including debt management), and public administration.

Despite the centrality of these tasks to Africa's future, they cannot be successfully accomplished unless fundamental changes are made in higher education -- changes that will dramatically improve quality. If African universities are to provide world-class graduates, research, and other essential services in response to the demands of their modernizing societies -- if they are to produce the research scientists and university teachers who can interpret the latest science and technology and harness it for the purposes of Africa's survival and future development -- then resources for higher education must be increased, and they must be used more productively.

This paper contends that these goals (expansion of resources and increased efficiency in the utilization of resources, so as to enhance the quality of higher education) can be met despite limited economic prospects and unremitting need for public austerity. It also suggests that successful implementation of policies to improve higher education may eventually help ease

the resource constraint to educational development at the lower levels. Adjustment of higher education in Africa to better serve the changing imperatives for development need not be at the expense of priority objectives in other subsectors but can be in support of them.

6.1 The challenge and the promise

The development challenge posed in tertiary education is in one important respect more daunting than for lower levels of the system. Real growth of public resources for the education sector as a whole in most countries is unlikely to keep pace with growth of school age populations, implying a decrease in real public per capita education expenditure. Even with vigorous application of recommended reforms at primary and secondary levels, these lower levels of the education system will require additional resources just to keep enrollment rates and quality standards from deteriorating from their current modest levels. But if public resources for education are at best constant in real terms, where will additional resources for primary and secondary schooling be found?

A portion of those resources can appropriately be supplied by the private beneficiaries of education and their families, not the public purse. It is probably inevitable that parents' contributions to the costs of primary education, and particularly secondary education, will increase, despite very real concerns about the impact of this on overall equity and efficiency. But, especially in the low and medium primary enrollment rate countries, where expansion of access to lower levels education remains an urgent priority, all of this may fail to ensure the increased stocks of human capital required for continued development.

The conclusion is both harsh and inescapable: To meet minimally acceptable targets for coverage and quality of lower levels of education in most countries, as a general rule the tertiary sub-sector's share of stagnant real public education expenditures cannot expand further, and in some cases may have to contract. Some combination of efficiency improvements, increased private contribution to costs, and constrained growth of (in some countries and fields, outright cutbacks in) production of graduates must be sought. Even more daunting, total savings from such measures, plus resources mobilized from the international community, must generally be sufficient to finance the indispensable quality improvements needed in the tertiary subsector in the short-run, as well as its expansion in the long run. In some cases, such as the Sahelian countries where the crisis in coverage at the lower levels is most acute, these savings may need to be substantial enough to free up some funds for these levels.

It will take years of dogged determination and profound changes in the way higher education is organized, managed, and financed to achieve the needed savings. In particular, unless tertiary sector managers are presented with compelling incentives to improve efficiency, impose quantitative limits on enrollments, and mobilize resources from the private sector, the required savings will not materialize. The most powerful incentive is to ensure that savings realized in any specific institution through wise and courageous leadership are in significant measure available for redeployment to quality improvements in the same institution. Conversely, policies that expropriate savings obtained by sacrifice in individual institutions and transfer them to a central authority for redistribution will be self-defeating because they

destroy the incentive to look for savings. Until those savings are obtained, the limits on what can be achieved in terms of quality at the tertiary level and of coverage and quality at the primary and secondary levels will be tighter, and the long-term prospects for development in sub-Saharan Africa more constrained, than need be.

The challenge, then, is to design and implement with persistence, over many years and in circumstances of severe austerity, policies that generate the resources needed for the revitalization of the subsector. If the challenge can be met, these policies promise to enhance the several critical contributions of higher education to national development.

In broad terms, tertiary education makes three such contributions. First, tertiary institutions prepare the personnel needed to fill high-level scientific, technical, professional, and managerial jobs -- i.e., they educate the elite leadership of a nation's development effort. Of special importance here is the preparation of teachers, scholars, and managers for the education sector itself, especially for its most advanced teaching and research functions. These people are the indispensable core of national capacity for sustained production of sound scientific, professional and technical manpower and for setting standards, maintaining quality, and adjusting the education system to changing circumstances. They are the leaders in Africa's battle against intellectual colonization with which the worldwide explosion of knowledge threatens the region. So it is that, second, African countries look to higher education institutions to generate the knowledge and innovation needed for development, through indigenous scientific research and as agents for the acquisition, adaptation, and dissemination of scientific and technical knowledge developed elsewhere. Third, African universities as institutions and their faculties as individuals can provide necessary services needed for development in both the public and private sectors.

Beyond these major responsibilities, tertiary education in Africa as elsewhere is also a source of analytical perspective on societal problems and their possible solutions that is independent of and, often, a usefully pluralistic counterpoint to, political and religious authorities. Higher education institutions also provide a mechanism for indigenous self-expression, help to conserve and adapt local traditions and values, and constitute important symbols of national prestige and attainment.

6.2 Issues in higher education

At least with respect to the preparation of high-level personnel, tertiary education's contribution to sub-Saharan African development since independence has been remarkable. The rapid growth of universities and enrollments was sketched earlier (Chapter 1). In 1960, tertiary institutions in Africa graduated about 1.2 thousand degree and non-degree holders, equivalent to one person trained at that level for each 168,000 inhabitants; the 70.6 thousand graduates in 1983 represented a ratio of one per 5,800 inhabitants.

With this notable easing of the high-level manpower constraint, however, the relative importance of tertiary education's other functions has increased. Today, higher education's continuing contribution to development is

threatened by four complexly interrelated weaknesses. First, the mix of outputs of the higher education system is no longer well suited to the requirements for development. Second, the quality of those outputs shows signs in many instances of having deteriorated so far as to cast doubt upon their fundamental effectiveness. Third, their costs of production are needlessly high (where cost is measured as the output forgone due to not applying elsewhere in the educational, or economic, system the resources currently going to higher education). Finally, the pattern of financing their production is socially inequitable and economically inefficient.^{1/}

(a) Inappropriate output mix

High level manpower. Of the three major outputs of tertiary education -- high level manpower (including scholars and teachers for the education sector itself), knowledge and innovation (research), and development advisory services -- sub-Saharan Africa today generally produces relatively too much of the first, and not enough of the second and third.

The proportion of tertiary graduates in African populations 24 years and older (now about 0.4%) is still small by comparison with other developing regions (on average perhaps 6%). The proportion of scientific, technical, professional and, especially, education sector positions filled by expatriates remains substantial in many countries. Over the long run, Africa can survive and prosper only by maximum exploitation of its major resource, people, including especially those with skills acquired in tertiary education.

Nevertheless, short- to medium-term overproduction of high-level manpower -- at least of the requisite quality -- is suggested by the growing problem of graduate un- and under-employment. Since reliable figures are not generally available, the assertion is largely based on the overwhelming weight of recent testimony from officials of African ministries and universities. Other considerations (like physical capital stock) aside, the incidence and size of surpluses of manpower trained at the tertiary level are likely to be greater in countries such as Guinea, Lesotho, Swaziland, Congo or Gabon where about one of every 2,000 inhabitants was awarded a degree from tertiary institutions in 1983 than in Mozambique, Tanzania or Burundi where the rate of production of tertiary graduates in recent years was only about one per 17,000 inhabitants.

Data problems notwithstanding, long and lengthening periods of job search have been reported among graduates in Zaire and Nigeria. In Kenya, a 1985 tracer study of University of Nairobi graduates between 1970 and 1983 documented periods of job search from one to three years and in addition found a rise in temporary employment and a decrease in utilization of graduates' formal training on the job. Manpower forecasts for Lesotho show an excess of graduates, particularly outside the teaching profession. In Somalia demand for tertiary graduates around 1990 is estimated at 150 annually while anticipated output of Somalian institutions, net of students returning from abroad, is more than five times that amount. Fewer than 15% of the approximately 1100 graduates of tertiary institutions in Mali in 1986 can expect to find employment in the public sector, and private sector opportunities are certainly no greater; the conclusion is that at most 30% of the graduates will find work appropriate to their level of training. If the base for these figures were to include Malians returning from training abroad, the picture would be even

darker. In Guinea, a 40% reduction in higher education enrollments was deemed necessary to bring annual production of graduates in line with absorptive capacity of the public service, essentially the only employer of tertiary manpower.

What accounts for this situation, now an essentially universal phenomenon on the continent? Several hypotheses can be offered. Each is worthy of rigorous testing in the light of country-specific circumstances.

To some extent, the apparent surpluses represent not so much overproduction as a general failure by African countries to nurture conditions in which individuals with tertiary education can be productive. Political philosophies and development models that place primary reliance on the reasonably unfettered interplay of market forces, internally and internationally, generate by their very nature incentive structures that afford a premium to skills acquired in tertiary education. As African economies succeed in their efforts at liberalization through structural adjustment, their ability to get the most out of tertiary level manpower will be enhanced. However inevitable it may ultimately be, this increase in the capacity of African economies to utilize tertiary manpower productively is unlikely to be noticeable before the end of the century. If recent experience is any guide (see Box 6.1 for a case in point), structural adjustment in the short-run exacerbates rather than ameliorates the problem of graduate unemployment, especially since aspirations and expectations of tertiary students with respect to occupational status and wages are much slower to respond to new economic parameters than the demand for the high level skills they embody.

[Box 6.1]

The more immediate explanation for the surplus is that, on the one hand, the demand for graduates contracted suddenly in both the public and private sectors. The economic downturn of the 1980s and the pressure to contain public employment arrived just as African civil services, almost everywhere the largest employer of tertiary level manpower, had largely completed the process of replacing expatriates with newly qualified nationals and were consequently reducing their hiring rates. Beyond reducing public sector demand for graduates, other aspects of adjustment to the downturn --including the retreat from import substitution industrialization, the shift away from nontradables (construction, banking, insurance), and sharper scrutiny of staffing levels following privatization of parastatals may also have slowed private sector demand for high level manpower, which in any event was often much less significant than demand from the public sector.

On the other hand, the economic downturn coincided with coming into production of the remarkable capacity expansion program for tertiary education which was undertaken in the 1970s. Between 1980 and 1983, enrollments in African institutions of higher education increased 30% (from 337 thousand to 437 thousand, not including the additional 100,000 African students enrolled in foreign universities) and graduates increased 70% (from 41.5 thousand to 70.6 thousand). In short, the supply of graduate manpower mushroomed.

In addition, the emerging imbalance between supply and demand was exacerbated by structural rigidities in the education system. Indirect evidence suggests excess supply of graduates in arts, humanities, and soft social sciences is not an especially new problem. In 1960, reflecting the need

Box 6.1: UTILIZATION AND EARNINGS OF UNIVERSITY AND TECHNICAL GRADUATES IN COTE D'IVOIRE

Between 1982 and 1984, Cote d'Ivoire experienced a severe recession, reducing the GNP per capita by almost 50%. As a result, many jobs were lost, especially in the modern private sector. The higher education system was not able to adjust sufficiently to accommodate the changing demand for its graduates. A 1985 survey in Cote d'Ivoire revealed that 37.5% of people with university diplomas in Abidjan and more than half of such people in other cities were economically inactive or unemployed. More than half of them had been in that situation continuously for the full year prior to the survey. Among people with vocational and technical diplomas, the situation was only marginally better: 33% of them were without jobs in Abidjan, and 26% in other cities. The reduced ability of the formal sector -- the traditional outlet for university and technical graduates -- to absorb such graduates, especially in Abidjan, has induced about 10% of them to take up work in the informal sector, mainly as self-employed entrepreneurs.

For those graduates who do find jobs in the formal sector, the private returns to their education are still quite high. Each year of post-secondary schooling adds an average of 17% to an employee's earnings. This figure is higher in Abidjan (19%) than in other cities (15%). For technical and vocational education, the increase in earnings is about 9% per year of schooling, with no difference between Abidjan and other cities. Such elevated returns to education in combination with high unemployment among university and technical graduates are signs of an imperfectly functioning labor market. In particular, it appears that as a result of the recession, the number of jobs has been reduced while the salary levels of those workers still employed have been maintained.

As for graduates who become self-employed informal sector workers, their earnings are sometimes even higher than the earnings of their wage-employed peers. For example, in Abidjan, a self-employed worker with a vocational or technical diploma has earnings almost 50% higher than a government worker with the same diploma on the average. Also, those earnings are more than three times the earnings of a self-employed person with only a primary school diploma.

These findings suggest the importance in the short-run of adjusting university output to levels that the labor market can absorb. At the same time, they point to adjustment mechanisms that will eventually allow full (or fuller) utilization of university graduates as the economy recovers and as labor market performance improves. The high productivity of graduates working in the informal sector, in particular, indicates that (even though new graduates may have to adjust occupational expectations downwards) college education is of broad vocational value.

for indigenous administrative personnel and the less onerous requirements in terms of costly facilities of establishing programs in the liberal arts than in the sciences and engineering, 60% of enrollments in African institutions of higher education were in the arts and humanities and 40% in the sciences and engineering. Today, Africanization of public service positions and (at least in some places) of management positions in the private sector is quite advanced, so demand for arts and humanities graduates is less robust. By contrast, demand for high level manpower in scientific and engineering professions is, in most places, much more substantial. Yet the 60:40 ratio is the same. Enrollment patterns have not responded to shifting labor market demands, a rigidity whose effect is exacerbated by lower proportions of students actually graduating in sciences and engineering than in the arts and humanities.

The recent appearance in a few countries of significant un- and under-employment among graduates of technical programs in engineering, agricultural sciences, physical and life sciences suggests that beyond structural rigidities in enrollment patterns, the overall size of the system in some countries may have exceeded what can currently be justified by requirements of economic growth. The continuing reliance on expatriates to staff scientific and technical positions, especially in the education sector itself, suggests that inadequate quality may also impede absorption into the labor force of graduates of African universities.

Finally, public subsidization of higher education has so far kept its direct costs very close to zero for the individual student. Yet, as Tables 6.1 and 6.2 make clear, wage differentials to tertiary trained labor remain substantial. As a consequence, the private rate-of-return to tertiary education is on the order of 30%, higher than for any other region of the world, and shows no sign yet of decline. Growth in the number of secondary school leavers with expectations of acquiring higher education, and the extraordinary private returns it has thus far conferred, has not slowed. The overall result is a paradox of more graduates than the economy can usefully absorb in many fields combined with undiminished pressure for expansion of higher education opportunities despite the reduced, and falling, probability of obtaining a well paying job once a diploma is in hand.

[Tables 6.1 and 6.2]

Education sector leadership. A number of specific scientific and engineering careers manifest excess demand for graduates, and may thus require focused capacity expansion. But the major exception to the general rule of overproduction of graduates is to be found in the education sector itself. For 18 countries for which data are available, expatriates constituted on average 35% of secondary school teachers at the end of the 1970s (see Annex Table C.9); the proportion is much higher in some fields (e.g., science, mathematics and technical education). Despite sizeable staff development efforts, including programs of foreign graduate training, many tertiary institutions are still critically short of African staff, especially in the senior academic positions of teaching and research leadership. In Nigeria, further ahead than most countries in the Africanization of staff, about 20% of teaching positions were still filled with expatriates in the early 1980s. Data for 10 other countries at the end of the 1970s suggest that expatriates on average filled 50% of

Table 6.1 Ratios of Graduate Starting Salaries to Per Capita Income

Country	Graduate starting salary as multiple of per capita income
Gambia	11.1
Ghana	3.6
Kenya	14.6
Liberia	11.1
Sierra Leone	5.1
Somalia	8.3
Tanzania	14.2
Zambia	12.0
Mean	10.0
Median	11.1

Note: Circa 1979 [International Labor Office, 1982].

Table 6.2 Index of Starting Salaries in Public Service by Education Level ("0" level = 100)

Country	"A" level	Degree level
Ghana	120	169
Kenya	127	269
Liberia	.	339
Sierra Leone	229	342
Somalia	128	171
Tanzania	148	323
Zambia	116	169
Mean	145	254
Median	128	269

Source: Derived from [International Labor Office, 1982].

tertiary teaching posts (see Annex Table C.9). And postgraduate programs, especially those involving rigorous research training, remain in their infancy, in part because requisite staff with doctoral qualifications and adequate experience are not available.

Indeed, the least recognized but perhaps, over the long run, the most devastating damage to African higher education since 1980 was to the promising start of the 1970s in building an indigenous African capacity to produce tertiary teachers, research scholars, and top flight analytic personnel for the public services. Illustrative of the situation is Nigeria, where erosion of progress will mean that only one-third of 3,000 new academic staff required by universities before the end of the decade is expected to be forthcoming from existing postgraduate and staff development programs. The shortfall is greater, of course, when doctoral level staff requirements in non-university research and professional occupations are considered.

Research. Although substantiation depends more on anecdotal than empirical evidence, African university staff uniformly report that research in their universities withered in the 1980s. As the financial crisis of tertiary education deepened, research budgets were typically subject to early and severe cuts. Since a significant part of postgraduate (especially doctoral) training involves student participation as apprentices in faculty research and ultimately the solo undertaking of a dissertation project, the feasibility of offering graduate education of reasonable standard suffered a concomitant decline.

Stagnation or outright decline in African research output, and in African capacity to produce future researchers, places in jeopardy the continent's long-run ability to take advantage of the worldwide advance in science and technology. Africa need not be consistently in the forefront of all scientific and technological advance. And well into the next century, a sizeable fraction of Africa's Ph.D.'s will still undoubtedly be earned from foreign institutions. But the continent nevertheless already needs substantial capacity for absorption and utilization of new knowledge, and that capacity is in large measure developed through the operation of indigenous postgraduate teaching and research programs. For example, frontier developments in genetic engineering and other areas of biotechnology are potentially applicable to problems of plant and animal health in Africa; the impact on production of food crops and on export agriculture could be sizeable. Extension of the argument to human health and even industrial processes -- and to such frontier areas as microelectronics and materials science (ceramics and metallurgy) -- is not hard to contemplate.

The central point is that without African mastery of the underlying science of such developments and an ability to adapt them to local problems and conditions, the potential benefits to Africa of these advances will likely be lost in large measure and certainly will be late in arriving. World class university-based programs of both basic and applied research and of postgraduate education are the breeding grounds for mastery of science and technology. They are the key to sophisticated consumption of mankind's exploding stock of knowledge and technology. They are a necessary condition for African escape from intellectual dependency. In a very real paradoxical sense, no African nation can afford to have such programs in the short run, and none can afford not to in the long term.

Consultancy and Advice. Even in their current depressed and fragile state, universities in Africa represent a nation's largest reservoir of expert knowledge and cosmopolitan experience. And here is another paradox. The continuing demand for expatriate technical assistance from both public and private sector organizations suggests there is no lack of tasks requiring the highest levels of academic training and professional experience. Yet, with only numbered exceptions, African universities as institutions and their faculties as individuals do not allocate much time and effort to direct service activities above and beyond the mounting of special training programs. Much applied work currently undertaken by foreigners could as well be done by African university staff, who in the process would enrich their own research and teaching by more thorough grounding in present-day African realities.

(b) Low quality

Direct and hard evidence on the level and trends in quality of the outputs of African higher education is not available. That African graduates may not be as knowledgeable as their peers elsewhere in the developing world may be suggested by results of the Graduate Record Examination, where scores on the verbal, quantitative, and analytic sections are uniformly lower than for Latin American, Asian, or Middle Eastern students; but the real significance of this finding is subject to varying interpretations. Beyond this, the low (and possibly declining) standard in African higher education is so pervasively bemoaned by teacher, student, employer, and government official alike (see Box 6.2) as to be everywhere accepted as conventional wisdom, which we do not dispute.

[Box 6.2]

Nor could it be otherwise, since indirect evidence of a crisis of quality is overwhelming. A tragic consequence of the economic downturn -- and of the concomitant constriction in public budgets and reduced access to foreign exchange -- has been the virtual disappearance from higher education institutions in many African countries of exactly those inputs that make physical plant and highly trained academic staff educationally productive.

These inputs include: spare parts for equipment maintenance and repair; routine replacement and upgrading of equipment; reagents and other consumable supplies; multiple copy textbook and monograph acquisitions for libraries; subscriptions to scientific journals; functioning computation facilities; maintenance, gas, and oil for vehicles used in faculty research and student field trips; other research support to faculty, including travel; even routine upkeep of physical plant (e.g., sanitary facilities and telephone exchanges) and public utilities (e.g., sewage, water, electricity). The level of deprivation of these non-salary operating expenses varies from place to place on the continent, but Annex Table A.22 suggests that, on average, less than 2% of total tertiary level recurrent public expenditures is available for these crucial purposes. Campus visits make clear that, in a reversal of the situation prevalent into the 1970s, scarcity of non-salary recurrent inputs, not the number or level of training of academic staff, is today the governing constraint on quality in African higher education in nearly every country.

Box 6.2 CRISIS OF QUALITY IN HIGHER EDUCATION

The scarcity of funding for capital investment and nonsalary operating expenses has seriously undermined the quality of education in African universities. The situation at Nigeria's University of Ibadan illustrates the problem.

For several months now we have been expected to run a physics laboratory without electricity, perform biology and zoology experiments without water and get accurate readings from microscopes blinded by use and age. Chemicals are unimaginably short. The result of all this is a chemistry laboratory that cannot produce distilled water and hundreds of 'science graduates' lacking the benefits of practical demonstrations. [West Africa, 12 September 1983.]

Ghana provides other examples. At the University of Science and Technology, equipment for the electrical engineering department has not been purchased since 1962, and most equipment in the civil engineering department dates from the 1950s. Such old equipment, including the university's computer, is rarely in working order; it requires regular routine maintenance, including replacement parts, for which funds are not available. The same university has been characterized as "... grossly short of... books, paper and food" ["West Africa," 18 July 1983]. Similarly, reports from the University of Ghana's faculty of science tell of shortages of chemicals and other consumables necessary for laboratory classes, and note that the scarcity of foreign exchange precludes the supply of essential materials from abroad. Lack of funds also means that some universities are operating without the vehicles necessary for student field trips and data collection, and that others do not have the resources to repair broken telephone systems.

In many countries throughout the sub-Saharan region, the lack of capital funds has led to unfinished construction work on classrooms, laboratories, workshops, libraries and residence halls. A 1981 report from the Nigerian Commission on Salary and Conditions of Service of University Staff states: "The Commission was horrified to witness the disgraceful spectacle of students in the corridors and outside lecture theatres struggling to comprehend the proceedings inside." Reports from the University of Ibadan are also discouraging: "Everything in the University today points to an agonizing decline. Students swarm from their hostels where there are six in a room designed for two, into a dingy lecture room where a teacher shouts his notes across a hall of five hundred listeners" ["West Africa", 12 September 1983].

The most immediate consequences of the drying up of non-salary inputs to higher education are that research ceases and instruction is reduced to little more than rote learning of theory from professorial lectures and chalked notes on blackboards. Chemists who have not done a titration; biologists who have not done a dissection; physicists who have never measured an electrical current; secondary science teachers who have never witnessed, let alone themselves actually conducted, the demonstrations central to the curricula they teach; agronomists who have never conducted a field trial of any sort; engineers who have never disassembled the machinery they are called upon to operate; social scientists of all persuasions who have never collected, or conducted an analysis of, their own empirical data; specialists for whom the programming and use of computers is essential who have never sat before or tested a program on a functioning machine; lawyers who do not have access to recent judicial opinions; medical doctors whose only knowledge of laboratory test procedures is from hearing them described in a lecture hall -- qualitatively deprived graduates such as these are now appearing in countries that have been hardest hit by the scarcity of non-salary inputs. But the threat to all applied disciplines is nowhere far removed, even in the relatively stable university environments. Complicating the situation further in many institutions are student numbers in excess of the carrying capacity of crucial components of the physical plant, living accommodation and library study space in particular.

As a consequence, the skills most relevant to development, those acquired when theory is confronted with the exigencies of the real world, are exactly the ones that do not get learned. The end result is that, in its stock of high-level skills and in its ability to generate knowledge and innovation, sub-Saharan Africa is falling further behind despite the increasing numbers of higher education graduates. Tertiary education discharges ever less effectively its principal responsibilities.

(c) High costs

Not only does higher education now produce too many graduates in many fields, too few high-level personnel for postgraduate education and research, and not enough research and development advisory and consultancy services. Not only are all those outputs of increasingly dubious quality. But the costs per graduate -- some of whom are not needed and many of whom are of poor standard -- are exorbitant. As a percentage of GDP per capita, which is a reasonable proxy for affordability, unit costs (costs per student year) of public higher education are six-to-seven times higher in sub-Saharan Africa than they are in Asia and nine times higher than in Latin America (see Table 6.3). As a multiple of the cost of a student in primary school, a plausible measure of opportunity cost, the unit cost of publicly supported students in higher education is about 60 times that of primary students (see Table 6.4), while the same statistic for Asia and Latin America is between 10 and 15 times.

[Tables 6.3 and 6.4]

There are two parts to this problem of internal efficiency, both reflecting fundamental performance shortfalls in African higher education. First, wastage -- and thus cost per graduate -- is high. Data for seven countries suggest that between one-third and two-thirds of the initial entrants to tertiary education complete their studies behind schedule or not at all. Thus, a sizeable portion of student places are occupied by repeaters and/or

Table 6.3 Unit Costs of Public Education at the Various Levels as Percentage of Per Capita GNP

Region/Country Group	Primary	Secondary	Higher
Sub-Saharan Africa	15	62	800
Francophone	23	86	1,000
Anglophone	12	51	600
Asia			
South East Asia and Pacific	11	20	118
South Asia	8	18	119
Latin America	9	26	88
All developing countries	14	41	370
Advanced countries	22	24	49

Source: Annex Tables A.17-A.19 and [Mingat and Psacharopoulos, 1985].

Table 6.4 Public Expenditure per Student in Tertiary Education as Multiple of Public Expenditure per Student at lower levels

	Tertiary as multiple of primary				Tertiary as multiple of secondary			
	1970	1975	1980	1983	1970	1975	1980	1983
Low-income economies	68	57	61	60	12	12	18	14
Middle-income economies	36	50	43	50	7	10	10	7
Francophone countries	40	55	44	61	9	12	18	13
Anglophone countries	79	68	50	52	11	11	11	12
Sub-Saharan Africa	55	55	50	59	11	12	14	13

Note: All figures are medians. Based on Annex Tables A.17-A.19.

future dropouts, with the result that many more years of student services are required to produce each graduate than the length of the cycle would optimally require. Among the factors contributing to student repetition and dropout are: insufficiently developed selection mechanisms for students aspiring to enter higher education (in some countries it remains the case that all who graduate from secondary education are assured a place in higher education); the dearth of non-salary quality-enhancing inputs (noted earlier) which makes learning difficult, unstimulating, and unrewarding; and the absence of sanctions for poor performance of students and teachers, so there is no incentive to strive hard for results.

Second, resource costs per student-year of higher education services provided are needlessly inflated. Although not uniformly present in every country, several factors typically contribute to the unnecessarily high costs of tertiary institutions borne by the education budget of African nations.

Within a sample of 50 African universities at the end of the 1970s, 12 had enrollments under 1,000 students, while only 13 had enrollments over 5,000 (and several of these had students dispersed over more than one campus). This proliferation of small institutions precludes exploitation of the well documented economies of scale in higher education provision (and, in addition, means foregoing the academic advantages of critical mass concentrations of highly specialized staff). Explicit understandings on an appropriate division of labor -- in large countries internally among the tertiary institutions, and in small countries across international boundaries -- could greatly reduce this cause of high costs.

In many countries, universities were established initially as self-contained communities on vast tracts of land outside major urban areas, involving heavily subsidized provision to all staff members of housing, standard municipal services, and even welfare and social services (clinics, schools, clubs). The huge sunk costs of this infrastructure prohibit starting afresh, and the ongoing costs of this legacy must somehow be met. With few exceptions, the public budget picks up the tab.

Judging from the approved personnel establishments, the ratio of students to academic staff is 13:1 in a sample of Francophone African universities and about 7:1 in Anglophone Africa, where it ranges from 3:1 on the low side to 12:1. By way of comparison, the ratio of students to academic staff in British and French universities, in some sense the models for their counterparts in former colonial possessions, is 13:1 and 25:1, respectively. In some countries, where erosion of salaries and deterioration of working conditions have resulted in an exodus of the most highly qualified academics from the universities, the actual ratio of students to (in place) academic staff may be somewhat above the median. Still, staffing provision is generous by comparison with developed countries where the student-staff ratio is more typically twice that in Africa. One reason for this is the propensity to offer a very wide range of programs and courses in each institution, resulting in wasteful duplication. Course enrollment of 15 students is not unusual. This problem, too, could be alleviated in the large countries by cooperation among institutions and in the small countries by international cooperation.

African universities also usually employ large numbers of non-academic staff, especially to operate municipal and student welfare services and to care for the campus. For example, in 1980-81, Nigerian universities employed 52 thousand staff for a student population of 77 thousand. In a British university reasonably analogous to the three Ghanaian universities together in size, age, and location on the periphery of a large city, there are over six students for each member of the non-teaching staff and the ratio of non-teaching to teaching staff is 1-to-6. Illustrative of the general nature if not necessarily the exact quantitative dimensions of the wider problem in Africa, non-teaching staff in the three universities in Ghana outnumber students and the ratio of non-teaching to teaching staff is 14-to-1. Most of the difference is in service areas. Guards, ground crew, and maintenance personnel totalled 902 in one of the Ghanaian universities and 166 in the British university.

Of 24 African countries for which recent data are available, none has a general policy of charging tuition fees which are not covered by a government subsidy in some form. The essentially universal policy of charging no fees for higher education means ipso facto that the publicly borne unit costs are higher than they would be if a significant part of the burden were borne by students and their families. But the no-fee policy contributes indirectly to high unit costs as well, since students and their parents have no incentive to contain costs. If instead of fee-free higher education, students and their parents had to shoulder a significant proportion of the total cost, pressure would surely develop to contain unessential expenditure and, in general, to increase efficiency.

In a similar vein, the longstanding practice of providing either free room and board on campus or an allowance to all students, thereby shifting to the public "educational" budget the considerable sums required to cover living expenses of students, greatly inflates publicly borne unit costs of higher education in Africa. While several countries have begun to phase out support for living costs of students, fellowships to students still constitute half the public expenditures in higher education in a number of African countries. The scope for reducing such public expenditures is particularly broad in many Francophone countries.

Finally, unit costs are inflated by the failure to make maximum use of expensive teaching personnel and physical facilities, which is manifest in light teaching loads, in limitation of class and laboratory hours to a restricted portion of the day, and in letting the entire plant and staff lie idle at least 20 weeks per year. The scope for evening and vacation students to get access to universities has almost nowhere been exploited, the University of Zambia being an important exception. With universities effectively closed to all but the fortunate few full-time students, there is a substantial population of students taking courses at their own expense overseas.

(d) Inequitable and inefficient finance

Unlike the situation in some other parts of the world, tertiary education in sub-Saharan Africa is overwhelmingly public in ownership and operational control. Private institutions of higher education are often explicitly proscribed in fundamental legislation and administrative regulation. While it need not necessarily be the case, public ownership and control of higher education in Africa has meant for all practical purposes that tertiary

education --including the living costs of its students, which are not properly an education expense -- is entirely financed by the public budget. With few exceptions, students, their families, and their future employers are spared any contribution to the costs of higher education beyond the general incidence of the tax system and the income foregone while studying. The extent to which the private return to higher education exceeds the social return is a useful index of public subsidization of education, since most of the difference between the two is due to including the state's contribution to costs in the social rate calculations and excluding them in the private rate calculation. The available evidence suggests that in Africa private returns to higher education are, conservatively, 150% greater than social returns, a multiple more than 3 times higher than in Latin America or in developed countries generally and more than 15 times higher than in Asia.

There are two undesirable consequences of this insulation of the beneficiaries of higher education from its heavy costs. Income inequalities are increased through the sharply regressive impact of higher education expenditures; the system assures that the rich get richer and the poor get poorer. And perhaps more important, within the education sector as a whole, and within higher education as a subsector, resources are allocated inefficiently.

6.3 A program for structural adjustment of African higher education

If the above overall diagnosis of weaknesses in higher education in sub-Saharan Africa were to be confirmed through careful analysis of the situation at the individual country level, the four objectives to be sought for the short-term through reformed policies would be clear enough: (a) improve quality; (b) increase efficiency; (c) constrain output, especially in those fields that do not directly support economic development; and (d) relieve the burden on public sources of financing by increasing the participation of beneficiaries and their families. But quality enhancement as the first objective will cost money. Thus, implementation of policies to achieve the last three objectives will, essentially everywhere in sub-Saharan Africa, be a prerequisite for freeing the resources needed to achieve the first. The four objectives would, of course, be pursued with differing mixes of policies, as appropriate to particular country circumstances. The sequence of policy implementation would also depend upon the needs of each country; gradual phasing in of new policies, in stages over some years, would have to be the rule not the exception.

(a) Improved quality

A quantum increase in the quality of tertiary teaching and research is the first objective. Long-term development goals cannot be met without it. However, quality improvement is unavoidably expensive. So, given the requirements of other parts of the education system and the environment of constrained public resources, no advance here is possible without significant progress towards the other three resource conservation objectives.

Quality improvement could be achieved through a variety of measures. Most immediately necessary is establishment and gradual implementation of standards of provision for the full range of vital non-salary inputs to teaching and research. Supply to the libraries of multiple copies of basic textbooks as well as supplementary books and periodicals is the highest priority, closely followed by supply to laboratories and workshops of

consumables and equipment maintenance and repair. Resuscitation of long-term efforts to upgrade the academic qualifications of staff is also essential. Formal postgraduate training in masters and doctoral programs, for the time being mostly outside of Africa, is an essential part of this. But the need extends much further, to postdoctoral fellowships, faculty exchanges, collaborative research, and other professional links with foreign universities whereunder African academics are exposed to new developments in research and curriculum in their fields. Twinning arrangements, between a department in an African university and the same department in one or more foreign universities, are an especially attractive device for staff development at these sophisticated levels, and can profitably also involve service of foreign university staff in African institutions. For maximum productivity, such arrangements need to be sustained over many years.

Quality in tertiary education is also enhanced by rigorous testing programs administered independently of the universities and involving external examiners. This is an essential ingredient in setting standards of performance to which individuals and institutions can respond. Independent performance measurement also creates an ambient in which highly efficient independent study programs can develop.

Finally, in the longer term, quality improvements will be realized and sustained through the establishment of centers -- and, in some cases, of multi-institutional programs -- of excellence for postgraduate education and research in which critical mass concentrations of staff and resources can be achieved. In this regard, participants at the Mbabane and Harare conferences on higher education have voiced their support for an appraisal of the advanced teaching and research capabilities and capacities of African universities, as a first step toward identifying potential sites for research and postgraduate teaching in priority areas. By establishing such specialized, high quality institutions and programs, African governments would provide able African students with an attractive alternative to (more costly) foreign study, create incentives for university researchers to pursue their work on the continent, and in so doing address two aspects of the serious problem of "brain drain."

(b) Increased efficiency

Reduction in unit costs (per student year of educational services provided) is the second challenge. This would be achieved within existing institutions through such measures as: establishment and gradual phasing in of higher numbers of pupils for each member of academic staff; minimum standards for class or course size; reduced numbers of nonacademic support staff for each academic staff member (perhaps in part through using student labor in some campus jobs); increasing hours per week and weeks per year that academic staff and physical facilities are utilized; expanded access for part-time, fee-paying students; introduction of self-study methods (e.g., radio and correspondence) to teach low-enrollment courses; gradually assigning the full cost for housing, food, and other welfare services provided to staff and students to non-public sources; where feasible within countries -- and prospectively even among countries -- rationalization of programs and faculties, and consolidation of institutions, so that diseconomies of small scale are mitigated. No country is likely to be able to implement all of these measures, but all can potentially reduce unit costs of tertiary education by developing a coherent policy package from careful selection of a few. The potential role of international collaboration should obviously be pursued as well.

In addition to reducing unit costs within existing institutions, more widespread utilization of extramural degree programs has demonstrated the capacity for reducing per student costs to a fraction of the levels typically found in on-campus programs. Extramural degree programs rely on books, correspondence materials, occasionally radio (or audio-cassettes), occasional on-campus meetings, and most importantly, student time. Essential to the success of such programs is the existence of an independent examination or accreditation system (further discussed below) to measure and certify quality. Greater reliance on extramural degree programs frees governments from providing boarding facilities and covering the cost of transport, allows fuller use of existing classroom and laboratory facilities, and allows students to work while studying. Avoiding large concentrations of full time students, typically in capital cities, may in some instances entail the further virtue of lowering the potential for political turbulence.

(c) Constrained output

Reduction in the annual number of (publicly supported) tertiary education graduates in some fields together with deceleration in the growth of graduates in most others is the second challenge to be addressed. There will of course be exceptions to this general prescription by country and field, the clearest of which may be in teacher training and graduate education programs in the sciences, engineering and social sciences where outputs may need selectively to be increased. This quantitative output objective could be achieved through a more than proportionate reduction of intake to (publicly supported institutions of) tertiary education. Limitation of the intake to tertiary institutions could be accomplished by a mix of such measures as tightening up of selection criteria (instigation of stiff entrance examinations), establishing a system of differential availability of scholarships, or even outright imposition of quotas, by region and field; and initiating cost sharing more aggressively in the disciplines with highest graduate unemployment. Smaller entry cohorts composed of students of higher quality would help to decrease wastage during the tertiary cycle and reduce cost per graduate. Congestion of physical facilities, now a problem in some countries, would also be relieved. In addition to limiting the intake to tertiary institutions, the numbers of graduates can be further reduced, their overall quality increased, and important resources freed for investment in quality-enhancing inputs for those who remain, by conditioning the continuation of scholarships on fully satisfactory academic performance. Failure in a course could entail a "repetition fee" and failure in too many courses could result in denial of the privilege to return the following year under any circumstances.

In pursuing this objective, policymakers should realize that in individual tertiary institutions that have yet to expand to the threshold of diminishing average cost, restriction of output would imply higher unit costs. In such situations, consolidation of small institutions into larger ones should be aggressively explored as a way of constraining output without sacrificing the unit cost advantages of large institutions. The potential payoff to international cooperation in consolidating tertiary education is high.

Of course, in purely economic terms, recourse to such direct measures to control the number of graduates should not be necessary. If markets generally, and the higher education market in particular, functioned properly -- i.e., if prices (especially wages for labor) were unregulated, if information was comprehensive and readily available, and if entry and exit of firms (including higher education institutions) to the market were uncomplicated and expeditious -- supply and demand for higher education graduates would equate themselves nicely without public intervention. As structural adjustment of African economies is achieved and liberalization is institutionalized, markets will work better and the need to rely on public intervention to control enrollments in higher education will diminish. For the moment, however, the necessary conditions do not obtain. In their absence, and despite the imperfect wisdom of the authorities in designating the fields for expansion (or contraction) and in implementing appropriate measures (or incentives), public intervention is justifiable. During a potentially lengthy and painful transition to a more market-oriented system of higher education, direct action may offer the only practical short-term possibility to limit outputs of the system.

(d) Expanded cost-sharing on the part of beneficiaries

Recovery of some greater portion of the real costs of providing tertiary education is the fourth imperative. This would be achieved through such measures as: allowing the establishment of privately owned and financed institutions of higher education operating under state-set quality standards; introducing fees in public establishments, initially for non-instructional services like food and lodging and then for instructional tuition; imposing national service obligations -- e.g., to teach school, staff distance education centers. participate in adult literacy campaigns -- prior to, during, and/or after enrollment in higher education; promoting an educational credit market; imposing a special tax on earnings of tertiary level graduates during a transition period to implementation of effective graduated income tax systems.

Expansion of cost-sharing to include the beneficiaries of tertiary education and their families does not mean that governments should lessen their financial support to the subsector. Rather, promotion of broader financial participation should be seen as one way in which governments can help ensure the increase in financial flows to higher education which are necessary for its revitalization and ultimate expansion.

(e) Feasibility

Such a program of structural adjustment of higher education in Africa will not be easy to design or implement. First, fixing upon the educationally and economically correct mix, and then the sequence and phasing in, of measures in light of specific country circumstances requires analytical and planning capabilities which are nowhere plentiful, in some countries exceedingly scarce, and everywhere untested on a task of this complexity.

Second, political considerations will inevitably limit the feasibility of some desirable elements and sequences of measures, many of which will in the short term be perceived as threats to deeply ingrained interests of powerful groups in society (civil servants, professors, and students). Determined and very high level leadership will be needed to overcome resistance.

Third, actual implementation will demand a level of managerial competence that is uncommon. The program will have to incorporate actions to support management, especially through developing capabilities to monitor and evaluate the impact of new policies and to adjust and fine tune their implementation.

Fourth, very little can be expected to happen quickly, for institutional change of the magnitude required is always excruciatingly slow. Great persistence will be required.

Finally, and perhaps most importantly, a fundamental dilemma must be overcome. Rapidly applied, highly visible, and quick-yielding measures to reverse the precipitate decline in quality of African higher education and to assure its long-term upgrading are likely a necessary (although not sufficient) condition for acquiring societal acceptance of the painful measures that will have to be taken to achieve the three resource conservation objectives. But it is only after those measures have been put in place and taken effect that resources will be available for sustained maintenance and improvement of quality. Donors could address ways to resolve this dilemma of transition as a first step in restructuring international collaboration on higher education in Africa.

* * *

Academics, university administrators, public sector managers and even students share an acute recognition of the intolerable situation of African higher education. In most countries, measures to increase efficiency, constrain output, and diversify finance are already under consideration and, in some places, beginning to be implemented. As such measures take hold, the possibilities for introducing urgently needed quality enhancement will grow. In summary:

Recommendation 4. Recent deterioration seriously threatens the ability of most of Africa's institutions of higher education to make their several, absolutely vital contributions to the region's development. The quality of these institutions must first be restored and then further enhanced in order for the region to extract maximum advantage, for its own purposes, from the accelerating worldwide advance of science and technology. In most countries, however, a period of adjustment to changed economic circumstances is a short-term prerequisite for improving higher education. Some tertiary institutions, individual campuses, academic departments, and teaching programs need to be amalgamated into larger units of economically viable size. Personnel reductions, especially of non-teaching staff, are indicated in some countries but should be sought in such a way as to increase the average level of relevant training and experience of those who remain, particularly those in academic positions. The number of students at most institutions needs to be stabilized, through tighter admission and performance standards, and through the elimination of living allowances and free room and board; the adverse equity impact of this final measure can be mitigated by the provision of scholarships based on need. Such consolidation in higher education will permit reestablishment of an economically and pedagogically viable base of requisite quality from which to bolster future expansion of graduates, research, and community service.

Chapter 7. USING RESOURCES WELL: THE MANDATE FOR EDUCATIONAL MANAGERS

Although enrollment stagnation and low quality can ultimately be traced to demographic and economic adversity, they are exacerbated (and their resolution hampered) by inefficient use of available resources. Reflecting this inefficiency are widespread underutilization of facilities, high levels of absenteeism of teachers and students, and a general lack of order and discipline in the operation of educational systems. Administrative and logistical infrastructures originally created for systems of quite limited size are incapable of coping with the vastly expanded structures of today. This constrains the ability of governments to plan, implement, and monitor policy changes that would address the obstacles to improved educational quality and coverage. While appropriate policy changes are necessary to improve education in sub-Saharan Africa, they alone will not suffice. They must be coupled with strengthened management, initially of the capacity to deliver traditional educational services, if the benefits of change and innovation are to be realized.

Despite more than two decades of investment in education, management capacity remains strained and insufficiently developed. This has been due to a combination of reasons: relatively low investments in this area; fragmentation in efforts of governments and donor agencies that inhibits sustained institutional development; multiple and sometimes conflicting donor policies and procedures, which often consume a disproportionate share of management time and attention; and difficulties in adapting modern forms of organization to the values and patterns of allegiance characteristic of many African cultures. Central, therefore, to the mandate of educational managers will be the strengthening of their own capacity to use available resources well.

The discussion that follows is concerned with three levels of management. At the bottom is school-level management; in recent years educational policy analysts have developed a strong consensus around the key importance of the school-level manager -- the principal or headteacher^{1/} -- and the community environment in which he or she operates. Linking the headteacher with the policymaker is a structure for policy implementation, which involves incentives and local politics, budgetary choice and project development, teacher training and teacher supervision. At the top is management of policy development for the national system.

Shaping managerial performance at each of these three levels are four main factors: (i) the management and organizational structure itself; (ii) the student testing, general statistical, and accounting systems that provide information to managers; (iii) the analytical capacity that generates and evaluates options for managers at all levels, but particularly for managers at the policy level; and, (iv) the quality and training of managerial staff. These four factors are subject to direct improvement: the policy levers for enhancing managerial capacity thus lie in these domains. The remainder of this chapter discusses the importance of each of these four factors and what is now known about potential for their improvement.

7.1 Improving organizational structure

Organizational structures establish predictable relationships between people and tasks, and thus channel the processes of getting things done. They are intimately connected with the distribution of power and authority, and they have considerable impact on decision-making and resource allocation. The need for structures appropriate to the management of African education is acute. Although the issues and their resolution are complex and inter-related, three areas of policy concern stand out: school management, decentralization, and structural simplification.

(a) School management

School management is a crucial component of effective teaching and learning. Effective schools display common characteristics. First, they display an orderly environment. Teachers and students attend regularly, records are kept, and buildings and grounds are clean and adequately maintained. Second, they emphasize academic achievement. Progress is made against the curriculum, available materials are used, tests are given and results used by teachers and students. Third, teachers and principals expect students to perform at high levels of achievement. Teachers provide students with regular performance feedback and remedial assistance. Students come to believe that work and effort are more important than luck in helping them to get ahead. Fourth, headteachers pursue an activist policy for effectiveness. They have high performance expectations for staff and students. They take an interest in classroom activity and are able to provide professional advice to teachers. They take initiative in acquiring resources for the school. They interact effectively with higher level authorities and with the community.

The structure of education organizations can help support effective school management by granting to schools the authority to generate and, importantly, to use local resources. Schools that are able to invest locally generated resources in school improvement are able to show parents a return on their financial sacrifice and, thereby, to assure continued parental support. School supervision provides technical and administrative assistance for these activities. The role of headteachers can be broadened to include these tasks, as well as an expanded responsibility for the quality of classroom instruction. Where the small size of the school precludes the appointment of an adequately qualified headteacher, a first-line supervisor might be given these managerial responsibilities and become, in effect, the ambulant headteacher for a number of schools. Alternatively, a headteacher might be designated and either released part-time from classroom responsibilities or provided additional remuneration as compensation for school management activities.

The successful implementation of a school improvement policy will demand the establishment of strong and permanent structures for school support and supervision. These should be designed to allow for regular supervision of schools, permanently available opportunities for in-service teacher training, and frequent upgrading programs for first-line supervisors designed in conjunction with national policy and research institutions.

(b) Decentralization of policy implementation

With some notable exceptions, e.g., Nigeria, a pattern of highly centralized education systems has emerged in most of sub-Saharan Africa, and this tendency has become more pronounced, if anything, in the years since independence. The rapid expansion of schools, combined with the increased importance of central funding and expenditure control, has led to an increasingly centralized system of education management. Resources are controlled at the center, and lower level managers typically elevate all decisions to higher levels. Centralization in education is not, in and of itself, necessarily something to be avoided, and indeed, a convincing case is often made for it, especially in newly independent countries where a strong sense of nationhood has not yet been developed. Also, a centralized system of education may be shown to be more efficient for some purposes than a very decentralized one, to the extent that it results in less duplication of effort.

Within the African context, however, there are good reasons for believing that education systems could be made more efficient if certain functions and responsibilities were devolved away from central ministries of education and manpower development. The reasons favoring greater decentralization have to do with particular characteristics that typify most African countries: large geographic distances between individual schools and the center; great ethnic and linguistic diversity between communities; and relatively poorly developed systems of communications -- inferior transportation (the absence of all-weather roads, of functioning vehicles, and an inadequate central government budget to keep the vehicles on the road); an incomplete and frequently nonworking telephone system; slow and unreliable postal services. Under such conditions, resource and information flows that are supposed to occur between the central ministry and individual institutions frequently do not occur, and an increased reliance on local initiative might obviate the need for such flows and alleviate the consequences of their not occurring.

Decentralization is a policy that can be pursued in two different ways. The first and more obvious kind of decentralization involves changing the structure of authority and responsibility in the public education ministry or ministry that deals with training so as to increase the autonomy of units at lower levels. As implied above, rigid centralization in Africa has tended to block information and decision flows and alienate schools from their local environments, limiting their ability to respond to local needs and resource opportunities. Decentralization can, in this context, contribute significantly to better school management by supporting school autonomy, increasing the responsiveness of the school to the local community -- and of the community to the school.

Second, governments can achieve decentralization by relaxing restrictions on the activities of private schools and training institutions. These include schools and institutions run by church groups and other voluntary organizations as well as many types of non-formal fee-paying education and training schemes operated by private concerns. This policy expands the range of educational services, and it shifts more of the costs of education to the beneficiaries. Government subsidies to such institutions, perhaps through need-based scholarships to attendees, can help assure equity and quality at relatively low unit costs. The efficiency of such schools is determined through the marketplace, as reflected in the willingness of students or their

parents to pay the price demanded for the services offered. Public investments to support decentralization of this kind include the publication of examination results and pass rates, the importance of which is further discussed later in this chapter. The effectiveness of such schools can be "managed" through examinations, the setting of standards, and inspectorate services. Such mechanisms help to create and enforce standards, and to disseminate information to the public on the status of individual institutions.

Decentralization through deregulation of private initiative is likely to be most effective in countries where private institutions exist but fail to flourish because of restrictive regulations. It will work better in places and at levels of education where family income permits increased expenditure on education. In short, it is likely to be more effective in urban areas and at the secondary and post-secondary levels.

Planning for decentralization in a given education organization is a complex task. The purpose of a given form of decentralization should be clear. Decentralization is not an end in itself, but a means to more effective administration of some specific activity or set of activities. Many things can be decentralized, to different degrees and in different ways. Work, decisions, responsibility, authority can all be assigned to various levels. In bureaucratic decentralization, what to assign, when, and for what purposes are all key issues. Units that are having difficulty carrying out current tasks (schools, district offices) may find the decentralization of certain types of authority helpful -- e.g., the authority to procure many items locally without cumbersome central approval. On the other hand, mandating that schools must be responsible for major new tasks (such as generating and allocating funds to provide teacher salary supplements and school maintenance) is less likely to succeed.

In sum, effective decentralization requires explicit attention to the definition of the roles of units at various levels and to the establishment of effective information flows between them. The successful management of educational reform in Ethiopia (Box 7.1) illustrates careful delineation of appropriate tasks to decentralize and others to maintain at the center. In general, central ministries should retain policy, planning, and monitoring functions. In most countries, curriculum policy and development, together with materials production, will continue to be centralized, unless and until the capacity for curriculum development is established at lower levels, and even then if the purposes are to maintain national standards and accomplish nation-building goals. Administrative support functions (such as payroll, procurement, and school construction), teacher training and certification, and statistical services may or may not be fully centralized, depending on the degree to which public administration is generally (and effectively) decentralized to states or provinces. Here the size of the country, the nature of the political system, and the effectiveness of communications infrastructure are determining factors, with the advantages of decentralization looming larger with greater geographic dispersion, more pluralistic institutions, and weaker linking infrastructure.

[Box 7.1]

Box 7.1 MANAGEMENT OF REFORM IN ETHIOPIA

Implementation of education reform in Ethiopia illustrates an organizational development strategy affected both at the central and local levels of the educational system. The central level -- the Ministry of Education and the Office of the President -- took responsibility for establishing the overall framework for change. Subsequently, a number of important tasks were delegated effectively to the local level. It was this combination of strong central control backed up by local involvement and initiative that created the environment in which successful implementation of the reform program took place.

The goals of the reform were the expansion and improvement of education in rural areas through the construction of schools and the implementation of a completely revised curriculum. A series of education projects, begun in 1966 and backed up by a 1972 Education Sector Review, were implemented in support of a long-term strategy for meeting the country's socio-economic needs. The institutional capacity for educational planning, project management, curriculum design, and developing and distributing educational materials was gradually developed over a ten-year period. These system resources served as the foundation for further reform.

With the arrival of the new government in 1974, official commitment to the reform of Ethiopia's education system was strengthened. In the context of fundamental changes in the social, economic, and political development of the country, the government viewed education as a vehicle for social change and made educational development a high priority. Implementation of the reform at the central level relied on three well-established institutions: the Ethiopian Building Construction Authority, which was responsible for the physical implementation of three earlier projects supported by the World Bank and the efficient implementation of this one; the National Curriculum Development Center (NCDC), which was well-equipped from prior experience to handle the testing and finalization of the curriculum materials under the project; and the Educational Materials Production and Distribution Agency.

Although the reform was carefully directed by the central government, implementation was highly decentralized. At the local level a capacity for teacher training, support, and supervision was established through the Awraja (district) Pedagogical Centers, which provided a permanent base for these activities. The management strategy also provided for the incorporation of local input. Considerable effort was made to include technical feedback from administrators and teachers on the new curriculum and materials, which proved to be keys to the project's success. Curriculum and textbooks were tested in 70 experimental schools prior to adoption nationwide. Teachers and administrators provided feedback to NCDC staff, who then carried out a summative evaluation. Moreover, community support and participation played an important part in project implementation. Student commitment was fostered by out-of-school community work that taught additional practical skills and gave students a chance to apply what they had learned in the classroom. This work was performed under the supervision of Peasant Associations, School Management Committees, and local-level political units known as Kebeles.

Schools are responsible for the quality of instruction, and headteachers play a key role in meeting that responsibility. The headteacher should, within the framework of careful role definition for various levels of the system, be granted the authority necessary to achieve quality in the individual school. The headteacher should have a genuine voice, if not the final say, in all of the following: appointment, disciplining, and dismissal of teachers; adaptation of curriculum and classroom schedules to meet local circumstances; establishment of effective relationships with community organizations; generation of local resources; and importantly, use of locally generated revenues within centrally provided guidelines and a system of accountability.

The functions of intermediate levels of administration are also crucial to effective decentralization. Supervision of schools should be expanded to include technical advice and training support for new functions in schools, such as resource generation, and not be seen narrowly as visits from the center to collect statistics. To the extent that non-formal and private education expand under ministry aegis, supervision systems must expand to cover new types of institutions and tasks. The linking function, of moving information both ways between schools and higher authorities, increases in importance. For vocational and technical education, staff should be responsible for establishing and strengthening linkages between schools and employers. This also is a specialized role for which centrally provided training and resource support may be needed.

(c) Structural simplification for policy development

Structural simplification can support decentralization and school management if specific measures are taken as part of a broad strategy for structural reform. As certain administrative functions are delegated to lower levels, central ministry functions may be simplified. It becomes possible for central ministries to devote greater attention to their principle functions, which are those of broad policy planning; design of policy implementation strategies; monitoring the consequences of policy implementation through observation, testing and evaluation; and adapting policy in the light of its evaluated impact. Delegation of power to appoint and dismiss teachers to school-level or intermediate-level officials greatly simplifies the personnel management responsibilities of the central ministry. Gathering of statistical data is a second case in point: as the capability to gather and aggregate data is decentralized, the tasks of the central unit are simplified and reoriented toward quality control, analysis, and dissemination.

In support of this more focused role of central government, two sorts of structural simplification will often be in order. First, those countries with more than one ministry dealing with education (or ministry-level entities such as Ethiopia's Higher Education Commission), and certainly those few African countries with three or more such ministries, will wish to consider structural simplification through consolidation into a single ministry. This will encourage a broader perspective in the development of education policy.

The second sort of structural simplification will be development of an entity responsible for maintaining a system-wide view of training within the economy. It would track how training activities relate to educational activities and how they relate to employers, and it would develop appropriate

policies toward training. While such a training policy unit might be housed in a ministry of education (or an expanded ministry of education and labor), it might also be located in a national planning ministry. In either case its work would both facilitate and be facilitated by consolidation and streamlining of the ministry of education.

7.2 Improving information: testing, statistical, and accounting systems

Each management level -- from the policy formulation level to that of the school -- requires information for its own use and as a commodity that it provides to the larger social system. Broadly speaking there are two main types of information with which the education sector needs to be concerned. The first is achievement test information on the quality of student performance; the second is descriptive data concerning the numbers and types of institutions, personnel and students in the system, their geographical distribution, and the financial flows that affect them. These data are used at all levels for planning and resource allocation; they are a necessary input into the analytical function to be discussed in Section 7.3; and test data play a key role in certification and selection of individual students.

(a) Educational testing

There is a long history of educational testing in Africa, beginning, in the colonial era, with extensive use of examinations administered from Europe. After independence, such multinational groupings as the East and West African Examinations Councils played critical roles in helping develop a cadre of experienced African testing professionals and psychometricians. External examinations (i.e., examinations external to the individual school) play important roles today in a significant number of African countries.

The role of external examinations should be fourfold:

- o First, if properly designed, examinations provide performance measurement of the system as a whole and of individual districts and schools; this can allow tracking of performance over time, international and inter-regional comparisons of performance, and school-level accountability for performance. This accountability function is best served by making public appropriate aggregations of scores in a timely way. These performance measures can also be used as an input to the system's analytic efforts -- allowing, for example, for careful evaluation of new projects or reform efforts.
- o Second, well-designed examinations play a curriculum improvement role. They encourage classroom level teaching (and learning) of the designated curricula, since teachers teach to (and students study for) the tests, however they are designed; if the tests are well-designed, teachers teach (and students learn) what they are supposed to. Both this function and the performance measurement function are central to improving educational quality.
- o Third, examinations allow objective selection of students into the next cycle of education or into appropriate training opportunities.

- o Fourth, external examinations allow objective certification of student completion of an educational cycle; such a certification procedure is essential to the widespread implementation of independent study programs that were identified in Chapter 5 as highly cost-effective.

The performance measurement function can be well performed by testing only samples of students at selected times. To a lesser extent, this may be true of the curriculum enhancement function as well. Student selection and certification, on the other hand, will usually require testing all students at appropriate points in their progression through school; different tests may be desirable, however, for the selection function than those used for certification. Most external examining performed in Africa today, with the important exception of Kenya, emphasizes selection, and although this provides a base upon which to build, further development of education testing systems should ensure that testing serves all of its important functions.

To do this successfully, and particularly to serve the curriculum improvement role, examinations must cover the full range of cognitive competencies specified to be covered in the curriculum. These include, in addition to those competencies intended for the minority of pupils who proceed to the next level, all those needed by the majority of pupils who do not. If the examinations fail to test for these latter competencies, the schools have little or no incentive to teach them, nor students to study for them. This results in primary education being treated narrowly as a preparation for secondary education, and not as a provider of worthwhile terminal skills.

Recent experience in Kenya shows that it is possible to shift from an examination system that merely screens pupils to one that stresses the full range of skills deemed appropriate for primary school pupils to be taught (see Box 7.2). Experience there also shows that examinations can be used as an important tool for monitoring and, ultimately, through constructive feed-back mechanisms including newsletters and regular supervision, attenuating differences in achievement between schools and districts.

[Box 7.2]

(b) Statistical and accounting systems

Investments in testing should be accompanied by the creation of strong monitoring and information systems that provide limited but strategically useful information on schools, classrooms, teachers, students, materials, and finances to managers at all levels. These systems should emphasize simplicity and practicality of data gathering and use, and they should be based on careful analysis of information needs at different levels. They should be integral parts of the organizational structure, and the tasks inherent in their operation built into position descriptions and supported with training. In many countries the management of these functions should be closely tied to the education policy and planning unit.

The education information systems should operate in two directions: information should flow both up and down the administrative hierarchy. The relevance of statistics for improving the quality of education at the classroom level must be made clear to school-level personnel, responsible for collecting

Box 7.2 EXAMINATION REFORM IN KENYA

To be admitted into formal, government-funded secondary education, secondary technical schools, and some training schools, Kenyan students are required to pass the Certificate of Primary Education (CPE) examination. The test consists of several parts, including: mathematics; English; and a general section that includes history, geography and science (nature study, agriculture and health). During the 1970s efforts to reform the CPE grew out of concern that the test had limited relevance for those students who would not go on to secondary education, and that it rewarded memorization rather than reasoning ability. Critics charged that the CPE thus discouraged educational improvement through curriculum reform and more imaginative teaching methods.

In response to these problems and to the demand for equal access to secondary education, the government introduced a new exam system. It has attempted to make examination questions more relevant to the life experiences of Kenyan students and to test for thinking ability. In addition, the new system disseminates examination performance data to schools to help them prepare pupils to meet the new intellectual demands being made of them. Guidance information is provided through the use of a newsletter, distributed annually to all schools, field officers, professional educators, the teachers' union and the press. Its purpose is to explain the changes being made in the exam, identify key topics and skills that have caused candidates particular difficulty, and suggest ways in which teachers might help students improve their performance. Related changes are gradually being incorporated into textbooks and teaching materials as well. Further, district and school merit order lists are publicized, making CPE performance an important public issue.

Thus the new examination gives teachers an incentive to develop in their pupils relevant skills and knowledge, thereby improving the quality of basic education. The new CPE is intended to promote the development of a set of competencies that will be useful both to those entering secondary school as well as to those for whom basic education is terminal. In particular, the new system is designed to provide encouragement and assistance to the less successful schools in an effort to reduce quality differences among schools and geographical areas. And by basing questions on material relevant to the experience of most students and testing for reasoning ability, the new exam is also intended to be fairer to underprivileged groups.

the raw information and entering it into the statistical pipeline. School-level personnel should be the beneficiaries of timely analysis of data for their units and of information about the larger educational system.

Testing and monitoring systems may require significant investments in facilities, equipment, and staffing. These investments must address current problems of data reliability and timeliness. Now that the capacity to analyze data is, with the recent development of microchip technology, no longer, even in very poor societies, a major constraint, the collection of information on a timely basis assumes relatively even greater importance than in the past.

7.3 Strengthening analytic capacity

Analysis and planning are central to efficient resource allocation and, therefore, to the achievement of quality education under conditions of austerity. Educational leaders must increasingly be able to assess the performance of their systems and gauge the effects of their policies. This takes high-order analytical skills organized in strong, well-staffed central policy and planning offices. (In some larger countries, some of these functions may be decentralized to states or districts.)

The work of the policy and planning staff must be well-integrated with the policy-making process. In many countries the lack of staffing, information, and resources has reduced such units to the status of statistics offices, concerned primarily with meeting the information needs of donors. Such units are not able to use information to generate a range of policy options for review, or to monitor -- and thus learn from -- the implementation of policy decisions.

Considerable effort, centered mostly around training, has been made to develop planning offices and research capacity. The record, however, is not encouraging. To attract and retain good planners, education organizations need to provide adequate compensation and career opportunities. Planning must be supported by effective information systems, as discussed above, and adequate operational resources. The planning unit should have clear structural access to the highest levels of the policy-making process, and not be located in a temporary project management unit. In short, an effective analysis and planning unit must be planned as an integral part of overall organizational design. Ad hoc arrangements that train a few planners under project funding and that fail to provide continuing infrastructure support will not work. Here again improvement requires sustained (although not large) investment accompanied by structural changes necessary to make the investment productive. Providing training and incentives for enough planners, as well as the information and resources necessary for their work, will cost money.

Another element of strengthening analytic capacity, and a crucially important one, is that of developing the applied research base on which policy analysis can rest. Three lines of research stand out as particularly important. African education research institutions should, of course, play a key role in helping to ensure that research is timely, relevant, and of high quality. Since such institutions are only just beginning to appear in much of Africa, investment to strengthen their capacity and willingness to conduct research in these areas should be high on the agenda for action.

First, more descriptive operations-related research is urgently needed on the cost, finance, and running of education and training systems. How much do different types and levels of education and training cost? How are they financed? Who provides and who uses them? What materials are available to students and who provides these? How much time do teachers and students actually spend in school, and how do they spend that time? Are schools orderly and disciplined? Simple though such questions are, answers are frequently unknown; either quantitative or qualitative answers would clearly be relevant to improving operations. A great deal can be learned from selective improvements in routinely gathered performance and expenditure information coupled with more intensive analytical use of these data. When these data are combined with performance data from the examinations systems, vital questions of cost-effectiveness can be addressed.

The second type of research involves use of survey methods to assess the internal efficiency of education. The International Evaluation of Achievement (IEA) program constitutes an important tool for analysis of internal efficiency; its tests provide a discriminating instrument with which to measure the quality of schools in terms of their success in raising achievement in such core areas as mathematics and science. Levels, trends, and determinants of academic performance can now be tracked on an (almost) routine basis. Such objective feedback on performance is the key to accountability and quality improvement in education. Wider and periodic application of IEA-type instruments offers great potential for improved decisions on resource allocation. Research here is dependent on strengthening of the testing system, as discussed above.

A third relatively routinized line of research deals with external efficiency, i.e., with assessment of the labor market performance of graduates of different levels and types of education. The Living Standards Survey (LSS) approach -- pioneered with World Bank assistance in Cote d'Ivoire and Peru -- provides an instrument for assessing performance on several dimensions (see Box 7.3). Plans are now being developed for 10 other African countries to begin use of LSS techniques. LSS serves a very broad range of purposes, and it will be important to ensure that its potential for illuminating educational policy is in fact realized.

[Box 7.3]

7.4 Managerial staff development

Lack of skilled managers and low morale are fundamental constraints on African education at all levels. Past efforts to address these constraints have not been successful. Training has generally not been tied to clear longer-term strategies for organizational development. As a result, training has been general in nature and not well-linked with management development needs. Training opportunities have principally been provided for higher level staff (often trained abroad) and not focused on schools. And this training has been conceived narrowly as a single input.

A broader policy approach to the development of management skills is needed in most countries. Fundamentally, this will require the development of strong management institutions, a relatively long-term solution. In the short-term, governments should consider a number of immediate options. In view

Box 7.3 LIVING STANDARDS SURVEYS (LSS)

While national data that measure macro-economic growth performance are available in most countries, the quantitative basis to assess the distribution of the fruits of economic growth and the share accruing to the poor is much weaker in the majority of countries. In response, the World Bank launched the Living Standards Measurement Study (LSMS) in 1980. The goal was to set up a data system that would allow the monitoring of the well-being of households and individuals in different socio-economic groups of the society in the course of development. Unlike standard household surveys, from which data are typically available only years after collection, the LSMS system was to produce information quickly and in a form readily suitable for analysis that could directly inform economic and social policies.

The three key features of a proper Living Standards Survey (LSS) are the comprehensive coverage of the many dimensions of well-being, the emphasis on quality control, and speedy data processing. Living Standards Surveys collect information on the demographic characteristics of household members, their educational achievement, health condition, migration history, use of time in the home and the labor market, and earnings obtained as a result. The household's housing condition is surveyed, as are its ownership of assets and enterprises (and the earnings they generate), its expenditures, borrowings, and savings.

To be useful for policy, survey information must be current and of high quality. LSS quality assurance techniques included extensive training and refresher upgrading of enumerators, a higher than usual supervisor-to-enumerator ratio, use of personal computers (PCs) in the field for continuous data entry and instantaneous range and validity checks, and verification of identified errors and inconsistencies by the enumerator in a second data collection round. Experience in the Cote d'Ivoire and Peru, where the LSS system has been tested on a nationwide scale, has shown that tables can be produced within 3-4 months after data collection. Analysis in the LSS system can thus take place in parallel with data collection. As each new wave of data reaches headquarters, tables can quickly be updated.

The LSS generated data base is useful to study many aspects of education. In addition to educational attainment, the education module covers self-reported literacy and numeracy, formal and informal vocational and technical training, and the schooling of children who have left the household. All this is useful to study the total returns of the household's investment in education. For currently enrolled students, information is gathered on the type of school, distance and time of travel to school, out-of-pocket costs, and scholarships. Opportunity costs can be derived from the employment data. This permits a study of private returns to different types of education. The availability of information on other aspects of well-being can throw light on the links between education and policies in other areas such as health, labor markets, and migration. How do graduates of different educational curricula fare in obtaining jobs? Does better education improve one's use of health facilities? And conversely, does better health improve educational attainment? How do parental characteristics and migration history affect access to education? Should fees be charged for schooling? How much can poor people afford to pay for primary schooling?

of the difficulty of attracting highly qualified individuals to the education service, priority should be given to developing and advancing talented persons within the education sector. This will require that management development be seen as a system-wide activity, one that builds from good school management through intermediate levels towards the center. Training should be seen as one of several inputs. The others include resources necessary to make staff effective, incentives to hold them in the system, definition of career paths, and systems for performance assessment. A teacher should enter service with a clear idea of opportunities for advancement, and of the kinds of performance and training that will be necessary to move ahead.

Management development in the central ministry should be done in parallel with development at lower levels. Training across levels (for example, of headteachers and district officers together) should be commonplace, to strengthen role relationships and coordination.

Such efforts are heavily constrained by the lack of skilled managers and management trainers. One policy option for consideration is enhancing the incentive and career opportunity structures for highly skilled education staff in order to attract talented nationals. Such a policy is difficult to implement, of course, for a single sector and is more likely to succeed when applied across sectors with careful controls. Governments and donors alike might well review current practice and funding for expatriate assistance to see if ways can be found to divert resources from expatriate technical assistance, with its very high unit costs, towards such a policy.

Reliance on expatriate assistance, however, is likely to continue in many countries over the short term. Experience has demonstrated some measures that can be taken to ensure that such assistance is effectively used. First, expatriate assistance should be incorporated within a longer-term plan for development of human resources in the sector (as is currently the practice in a number of African countries). Such planning can give the government and its officials a clear sense of control over the use of high-cost expatriates and of the phases through which their roles will be assumed by national staff.

Second, expatriate staff should be assigned to line operating units where their expertise can be acquired by national counterparts -- not isolated in project implementation units without counterparts. These assignments should be carefully planned by government and donor alike to include as principal responsibilities both formal and informal training; expatriate performance should be evaluated on this basis. In some cases a training specialist should be included on expatriate advisory teams to ensure that expertise is effectively turned into training and training materials.

Overall, a combination of policies that (a) increase the recruitment, development and retention of skilled national staff; (b) base expatriate use on broad human resource development planning; and (c) give priority to the training role of advisors offers considerable potential for improvement in the short-term. Longer-term solutions require the development of permanent management development capacity and, ultimately, raising the ability of African institutions to provide the full range of management development services, including first-rate research.

7.5 Priorities and resource requirements

Substantial resources will be required to create a management environment in which African education can be improved. The policies recommended above envisage significant investments in more attractive incentive and career paths for managers -- and investments in training, analysis, and the creation of what, for many governments, will be the establishment of new or much stronger units for testing, accrediting, monitoring, planning, and training. Management development institutions will require substantial financial support. Most measures will incur significant recurrent costs to support the implementation of either management improvement.

Such investments pose difficult trade-off questions in the current financial and economic climate, in which resources for education system management have stagnated or declined in many countries. However, substantial investment in management capacity is important to the success of other reforms, including financial reforms considered necessary for establishing appropriate priorities within education. Some of these costs may be financed out of savings generated through policy reform. Others may have to come from difficult choices in other important areas.

A large share of these resources will have to come from the donor community. The pattern of donor support for education management, however, will have to change significantly if these resources are to be effectively applied. A much higher level of donor coordination will be required; this in turn will depend on the development of longer-term management development plans for a given country or region. Episodic project-related investments will probably need to be replaced by long-term investments in management capacity per se, including investments in well-designed management development institutions.

The scarcity of resources in the face of large needs argues strongly for a strategic approach to education management development that recognizes the validity and urgency of short-term needs but does so in the context of longer-term goals for institutional development. In such circumstances a strategy for management development must be developed out of the range of options -- for organizational structure, testing and information systems, analytic capacity building and staff development -- that were discussed in this chapter. At the outset, however, as a first priority, this strategy should identify the investments and activities necessary to achieve acceptable levels of school management, with all of the supporting systems necessary. This leads to:

Recommendation 5. The design of a policy framework to enhance the efficiency of resource use in education generally occurs at the national level, but successful implementation of policies will usually depend, in the final analysis, on the strength of managerial capacity throughout the education system, and especially at the level of the individual school. This capacity includes, among its essential ingredients, the presence of school leaders who possess both strategic analytic skills and the freedom to act on behalf of their school clients, and also the timely availability of relevant information on which to base decisions. Accordingly, the first priorities for education management should be, in mos. African countries: (i) the improvement of programs for selecting, training, and supervising school headteachers and principals, combined with enhanced institutional autonomy; and (ii) the development and implementation of achievement testing systems that provide feedback on institutional performance to individual schools, to their supervisors, and to the communities that they serve.

PART THREE: AN AGENDA FOR ACTION

An extensive menu of policy options for African educational development has been presented in the chapters above. The adoption and implementation by any one African country of all of the discussed policies is probably neither desirable nor feasible. The educational achievements and aspirations of individual countries, and the socio-economic and political constraints, vary too much for any single comprehensive set of measures to be completely or uniformly applicable. This paper is about diverse and variably applicable policies for African educational development, not about a monolithic and universally valid policy.

Nonetheless, the analysis of the predicament of African education and training systems in Part One of this report and the discussion of policy options for different levels of education and for sector management in Part Two do imply a generally applicable three-dimensional framework for the design, at the country level, of educational policies for the region. Although specific details will differ from one African country to the next, elements of all three dimensions are certain to be found in any carefully conceived policy package tailored to the particular circumstances of any country in the region today. The three dimensions, to be elaborated upon in Chapter 8, are labelled adjustment, revitalization, and selective expansion.

While undoubtedly painful and politically difficult, adjustment policies will alleviate the burden of education and training on public budgets. Measures for revitalization and expansion, on the other hand, will certainly require incremental resources. Thus, in the context of ongoing austerity in Africa, resolute movement toward adjustment is a necessary condition for implementing forward-looking policies on the other two dimensions. "Savings" generated from adjustment will be needed to help fund educational improvement and expansion.

Regrettably, all such savings from adjustment measures will not be sufficient to cover the very substantial resource requirements of the policies needed to revitalize and build African education to the extent essential for future development. International aid will remain a critically important determinant of the pace of progress of education in the region. However, the rapid evolution of African needs, as summarized in the three dimensional framework for policy reform, demands corresponding changes in the organization, nature, and level of international aid for African educational development. Chapter 9 reviews the pattern of public international development assistance in the early 1980s, and it sketches the modifications necessary to make future assistance fully responsive to and supportive of Africa's determination to make education work better for development.

Chapter 8. POLICY PACKAGES FOR EDUCATIONAL DEVELOPMENT

Hard decisions on education policy can be postponed -- but only at the cost in most African countries of continued enrollment stagnation and quality decline through the 1990s. Part Two of this paper has reviewed a series of policy measures -- some of them admittedly difficult -- that hold the promise of restoring quality and resuming an orderly expansion of enrollments. This chapter suggests that each African country should now embrace the task of formulating and implementing an internally coherent set of policies that, while reflecting the country's unique history and aspirations, will effectively address its own recently exacerbated problems in the education and training sector. Although the particulars of the policy packages that emerge from this exercise would vary from one country to the next, it is nonetheless clear that every country-specific package will need to contain, in varying proportions, elements of policy along three distinct dimensions. These three are adjustment, revitalization, and selective expansion. Moreover, if new policies are in fact to be implemented, management practices need to be improved.

The three dimensions of policy are defined below and further elaborated in the course of the chapter. The closing section of the chapter then discusses organizational issues associated with next steps in policy development and implementation.

Adjustment to current demographic and fiscal realities, though it will be difficult, is essential if the disruptive effects of these external factors are to be minimized in the years ahead. Adjustment will take two main forms:

- o The diversification of educational finance will be a necessary part of country-specific policy packages. This diversification can be achieved through increased cost-sharing in public education and through increased official tolerance and encouragement of nongovernmental suppliers of educational services.
- o The rigorous containment of unit costs will be just as important in the adjustment process, and in many countries, probably more important, than diversifying finance.

Revitalization of the educational infrastructure that now exists in order to restore quality is the second dimension of a properly conceived educational strategy. This involves a renewed focus on the fundamentals of educational provision so that maximum advantage is extracted from the current capacity of education and training systems. Three kinds of measures are necessary for the restoration of quality:

- o Textbooks and learning materials must once again become generally available in African classrooms.
- o There must be a renewed commitment to academic standards, principally through strengthening examination systems.
- o Greater investment must be made in maintenance of physical plant and equipment and in operational expenditures.

Selective expansion to address needs for further educational services is the third dimension of any complete strategy for educational development. Measures in this area, viable only after measures of adjustment and revitalization have begun to take hold, will concentrate in four areas; success in all will depend upon a general effort to safeguard the quality of instructional staff at all levels.

- o Renewal of progress toward universal primary education is the new investment that will bring the highest economic and social returns in many countries.
- o At the secondary level, and later on at the tertiary, expansion of enrollments in selected subjects and streams will be necessary in most countries in the years ahead. To accommodate these increases in post-primary education, most countries will need to consider alternative delivery modes that shift more of the burden for learning onto the students themselves; now is the time to begin planning for such programs and developing their requisite support infrastructure (correspondence materials, radio programs, and examinations systems).
- o The amount of training that occurs once individuals have entered the labor force must be increased; this training should serve both school leavers and also those who have had no exposure to formal schooling, so that individuals can acquire the necessary job-related skills and renew these skills during their working lifetime in response to changing market conditions.
- o Expansion of African capacity to produce its own postgraduate intellectual talent to fill the highest scientific and technical jobs in educational establishments, in government, and in the private sector is an important matter to be addressed in building for Africa's future.

The message here is:

Recommendation 6. To maximize education's contribution to economic growth in the years ahead, African governments should design and begin expeditiously to implement long-term education sector development programs. Each government will need to select, from among the many policy options available (including, but not restricted to, those discussed in this paper), a consistent package of policies that effectively addresses country-specific problems and serves country-specific goals. While the optimal policy package will differ from one country to the next, no country can afford, in light of education's high costs and its crucial role in the development process, to neglect this task. The policy package that emerges will, in every country, contain elements of three strategic dimensions -- adjustment, revitalization, and selective expansion. Given the pressure of population growth and fiscal constraints, most countries will need first to implement painful adjustment measures so as to generate the necessary resources for quality-enhancing revitalization; and the combination of adjustment and revitalization should be regarded as prerequisites for the longer-term return to selective expansion of the educational system.

8.1 Adjustment

The two elements of an adjustment program for education and training are diversifying the sources of finance and containing unit costs.

(a) Diversifying sources of finance

The imperative here is to acquire from the beneficiaries of education and training a much larger share of the real costs of providing these services. As regards training, an increase in the degree of cost-sharing is a normal concomitant of moving the locus of training closer to the workplace, a move justified on other grounds elsewhere in the paper. As regards education, the rationale for increasing the degree of cost-sharing, relative to the situation common at present, is strongest at the tertiary level but may, in some countries, be pertinent at lower levels as well.

Increased cost-sharing can be achieved through a variety of measures. First, countries might consider encouraging the establishment of, and relaxing regulations that currently constrain the operation of, privately owned and privately financed institutions of secondary and higher education. Encouraging and facilitating local or NGO efforts at construction, finance, and school operation, especially at the primary and secondary levels, can be expected to enhance the opportunity for resource mobilization and improved management in response to local needs.

Second, there is a clear rationale in secondary and tertiary education in many African countries for introducing or raising the level of family responsibility with respect to the costs of food, lodging, and other items of student maintenance unrelated to instruction. These are costs that must be borne whether or not individuals are enrolled in school. There is little if any justification for financing these costs out of the public budget, especially in poor countries where only a minority (and, nearly always, a relatively well-to-do minority) is enrolled at secondary and tertiary levels. Beyond full recovery from students and their families of student welfare-related costs, including especially costs of staff services unrelated to instruction, students themselves could be required to perform a variety of instruction-related support tasks now assigned to non-teaching staff (custodial care of teaching facilities, upkeep of the grounds, clerical and secretarial assistance, and other administrative support). Student provision of such services in kind, a widespread practice in many developing countries, is a potentially important approach to alleviating the public financial burden of secondary and tertiary education.

Finally, many countries will need to introduce or raise tuition fees in public establishments to cover a significant part of the costs of instruction. Especially in higher education, however, full cost-sharing could result in many potential students finding themselves excluded from education owing to their families' inability to pay. To the extent possible, ability to pay should not be a factor that determines who receives education and who does not. Therefore, alternative modes of financing the increased private costs of education would need to be introduced. Possibilities include: opening opportunities for national service obligations (e.g., to teach school) prior to, during, or after a student's enrollment; promoting student loans and other

educational credit markets; and, during a period of transition to an effective system of graduated income taxation, imposing a special tax on the earnings of tertiary-level graduates.

For most policies aimed at decreasing the government's share of full educational costs, implementation would need to be phased in gradually over a period of some years. And legitimate concerns on the policies' equity impact would need to be addressed.

(b) Unit cost containment

Unit cost containment, the more important component of adjustment in much of Africa, should be aggressively pursued at all levels of the education system on both the capital and recurrent accounts. The goal here is to reduce the economic costs per student, or per completed cycle, at each level (and not necessarily to reduce the total aggregate expenditure at any level).

Reducing construction costs and raising physical facility utilization rates offer considerable potential for reducing unit capital costs. Since annualized capital costs can account for 40% or more of the direct economic costs of education in Africa, careful attention to capital costs is a high priority. Too many existing educational facilities (particularly those financed in part through foreign assistance) cost a sizeable multiple of what best practice has shown to be possible. Chapter 2 projected the probable magnitude of capital expenditure in education budgets in the coming years under the assumption that best practice would prevail. In order to contain construction costs to the levels there indicated, it will be necessary to minimize expenditure on pedagogically redundant civil works (such as boarding facilities, auditoriums, cafeterias, and sports complexes) and to utilize low-cost construction methods and local materials. In addition, particularly at the secondary and tertiary levels, there is scope for more intensive utilization of existing facilities through extension of the teaching calendar. There is little or no justification in most cases for the current practice of closing down facilities in the evenings and during the long vacation periods. Absent compelling extenuating circumstances, new construction should be deferred until full utilization of existing capacity, as well as of facilities under construction but still to be completed, is reached.

Since personnel remuneration is the largest single item of education costs at all levels, modification in how teachers and non-teaching staff are paid and utilized is a potentially important element of any strategy to contain unit recurrent costs.

Recent experience has demonstrated that in some countries, there is a large payoff to purging from the educational payrolls so-called "ghost teachers" -- those who are not actually assigned to, or not fulfilling their assigned obligations to, classroom duties. There likely remains a significant potential to be exploited in this sensitive area, at least within the primary and junior secondary subsectors.

Reduction in the typically high numbers of non-teaching staff in African secondary and, especially, tertiary educational institutions should everywhere be pursued. Transfer to students of significant responsibility for performance of essential instruction-related custodial and administrative support services was included earlier among the finance diversification

measures. But beyond this, the levels of provision of such categories of personnel as messengers, drivers, watchmen, stewards, and sweepers can usually be reduced without sacrifice of educational quality. But because salaries at this level are low, even very sharp reductions will have only a limited, although nonetheless positive, impact on unit costs.

Reduction of teachers' rates of pay is also a policy option that should be considered in countries where it can be demonstrated that a sufficient supply of teachers of comparable quality would still be forthcoming. It is true that inflation has undermined teachers' salaries substantially during the past two decades, as it has all public sector wages in the region. Even if it were politically feasible, further reduction in real rates of pay for teachers alone (in isolation from other civil servants) could result in lowering the quality of education in some African countries. Certainly outright cuts in nominal wages would appear to be undesirable everywhere because of the adverse impact on teachers' professional motivation and commitment. All this notwithstanding, the growing numbers of unemployed secondary school leavers and of university graduates and dropouts in Africa suggests a potential pool of labor with adequate motivation and intellectual skills for teaching; they ultimately may be prepared to accept wages somewhat lower than currently prevail in the teaching profession. Some reduction in teacher wages, probably achieved by allowing inflation to erode the real earnings of all public servants including teachers, may thus be possible over time. This would be facilitated if certification requirements for the teaching profession are relaxed, a point closely related to entry qualifications, to which we now turn.

Although still difficult and controversial, another policy option is to reduce, especially at the primary and lower secondary levels, the minimum entry qualification requirements for teachers in terms of their years of preservice education and training -- and thus reduce the salaries that they must be paid under the existing compensation structure. The cost (in terms of children who, thereby, are denied access to schooling) of trying to match in the world's least developed countries the preservice educational requirements typical of the world's most developed countries is unjustified for two reasons. First, marginally lower entry qualifications -- e.g., one or two fewer years of schooling and preservice training for those teaching the early primary grades -- may not impact negatively on what pupils learn in the classroom, especially in Africa today where the governing constraints on learning are the lack of instructional materials and lack of effective time on task. Second, given the relative costs of providing preservice and in-service teacher training, and given the salary structures that prevail in most places, in-service training is usually the more cost-effective means of raising the quality of classroom instruction. For primary school teachers especially, many African countries should consider imposing further limitations on the quantity of preservice education and training, and coupling this with a policy of frequent in-service courses for the upgrading and refreshment of teachers' skills, with particular attention given to subject-matter competency and the proper use of instructional materials.

More intensive use of teaching staff is potentially the most fruitful approach for reducing unit recurrent costs. This will result in unit cost reductions so long as the percentage increase in teaching time is greater than the percentage increase in salaries needed to motivate and compensate the teachers for their greater effort -- i.e., so long as teachers can be induced

to accept some reduction in hourly wages in the context of an increase in their total earnings. Even if average teachers' wages do not decline, the more intensive use of teachers as teachers (as distinct from implicitly condoning their performance of other labor, such as tending to the family farm or small business) may allow unit costs to be reduced.

As indicated in Chapters 4-6, the options to be explored for improved utilization of teachers are numerous. They include: lengthening, through a variety of schemes, the teachers' (but not the students') school day; holding classes six days a week in primary schools where this is not already done; increasing the teaching hours per week in secondary and tertiary institutions to levels more closely approaching norms outside Africa; reducing the vacation periods so that teachers (and facilities) are employed much more than the 36 weeks per year now common; increasing the minimum number of students in a class, especially in secondary and tertiary institutions where courses are often thinly subscribed. In addition to all such measures, each of which would result in some modest reduction in unit costs, most developing countries, if they aspire to bring about nonincremental changes in educational access over the next several decades, will need to consider some fundamentally different alternatives for the delivery of educational services (see, below, discussion on extramural study programs).

An analysis of tertiary education in Africa leads to a special conclusion about teacher utilization at this level. For reasons discussed in Chapter 6, it will be desirable in most African countries to stabilize, or even reduce the number of university students in the short-term (i.e., the next five-to-ten years). This adjustment would be achieved by contracting relatively low priority faculties (e.g., arts and law) and by consolidating the number of institutions and academic programs within a country or across several smaller countries. This contraction and consolidation would allow for a substantial improvement in facilities utilization and increases in class sizes in core programs on the consolidated campuses, thereby increasing the productivity of the teaching personnel employed there. A painful -- but absolutely necessary -- concomitant of this adjustment measure in higher education will be reductions in faculty numbers beyond what would occur through normal attrition. Substitution of expatriate professors with (somewhat fewer) African academics will in some fields make it possible to avoid dismissing currently employed teaching staff. However, in selected disciplines in arts and humanities, where overproduction of personnel trained at the tertiary level is most severe, the redundancy of African teaching staff is inescapable and must be squarely faced.

8.2 Revitalization: restoring quality

The second dimension of an educational strategy for Africa involves revitalizing the infrastructure now available for education and training in order to restore and enhance quality. This amounts to a renewed focus on the fundamentals of educational provision: instructional materials, academic standards, the maintenance of equipment and physical plant. Students and teachers waste their time (at great cost) for lack of textbooks and other learning materials and for lack of effective examination systems to set and maintain standards. School supervision systems, vital to educational performance, come to a halt when there is no money to operate vehicles or pay for telephone and other communication services. In addition, buildings and equipment deteriorate for lack of maintenance, and expensive laboratories are

not used for lack of reagents and spare parts. These items of non-salary recurrent expenditure have been highly vulnerable when budgets had to be cut, even though they amount to only a small fraction of total education expenditures. Appropriate balance in the input mix must be restored immediately. Measures aimed at systematic and sustained revitalization of the education enterprise, through renewed commitment to academic standards and non-salary recurrent expenditures, are essential supplements to adjustment policies if efficiency and sustainability are to be achieved.

(a) Instructional materials

The top educational priority in Africa today is to ensure that every child in every classroom has access to the pedagogically necessary minimum of instructional materials. What that means in concrete and practical terms is of course different for the several levels, and within levels will vary by grade, subject, and curriculum content. Methods of supply and finance will also vary from country to country. But only those countries that accord central importance to provision of instructional materials can be judged to have put in place adequate strategies for educational development.

Difficult issues will have to be confronted: what pedagogical material to develop locally and what to purchase from abroad; the trade-offs between higher-cost local printing and least-cost printing elsewhere in the region or, more usually, outside Africa; the use of nontraditional media such as radio. In its own recent and thoughtful policy paper on education, the African Development Bank spoke eloquently to these issues in placing great emphasis on the importance of addressing the instructional materials problem within the overall context of restoring non-salary recurrent expenditures to adequate levels:

The supply of appropriate teaching materials is particularly inadequate in large parts of Africa. While this is to some extent a question of finance, the issue of producing and distributing adequate teaching materials for African schools goes much beyond the question of funds. As there is an urgent need not just for any teaching materials and textbooks, but for materials that are more closely in tune with the realities and needs of African societies, a major field of lending activity opens up here. Bank Group loans will support, not just some of the technical assistance needed in modifying and adapting existing textbooks and materials and preparing new materials, but also the production and distribution of these materials in Africa. Educational Resource Centers in areas where there is a particularly serious shortage of instructional materials could be another example of this general thrust. In this area of quality and internal efficiency, as the majority of the non-salary inputs have a direct effect on the qualitative aspects of education, the Bank Group will give priority to assisting regional member countries identify and maintain minimum standards for non-salary inputs. [African Development Bank Education Sector Policy Paper, 1986, pp. 15-16.]

(b) Academic standards

Beyond putting instructional materials in classrooms, the restoration and clarification of standards of academic performance in education are key elements of quality improvement. This is important at all levels. Academic expectations for students and schools should be high, and they should be clear. By providing signals on performance to which teachers, students, and parents can respond, the examination system is a powerful measurement-cum-incentive device that should be used explicitly for raising academic standards. But to perform this function, most African examination systems need modification so that the broader range of cognitive competencies sought by a nation from a given level of the educational system is sampled on the tests, rather than their concentrating, as is now often the case, narrowly on those skills most needed for success at the next level of the system. Only if examinations are so structured will the curriculum be made pertinent for the majority of students for whom any level of education is now terminal.

(c) Operation and maintenance of physical plant and equipment

Preventive maintenance and repair of physical plant and equipment, another item of non-salary recurrent expenditure, is an essential ingredient to revitalizing African education systems. Quality education is just not possible in laboratories and workshops that have no electricity or water due to deterioration in wiring, fuses, and plumbing, and where equipment does not operate for lack of spare parts and consumable supplies. Maintaining door and cabinet locks in fully workable condition, replacing broken windows, repairing leaky roofs, changing the oil and filters in heavy use field vehicles -- these may be simple things to do, but they are not getting done. Failure to do them means that vital equipment is not available and functioning when needed, and unit costs are inflated when premature replacement is the consequence.

Once plant and equipment are restored to fully functional status and their maintenance attended to on a routine basis, money is also needed so that these resources do not sit idle. In this respect, for example, reestablishing adequate budgetary provision for such simple items as petrol, postage, and telephone service is essential if school supervision systems at the primary and secondary levels and field work at the tertiary level are to make their intended contribution to educational productivity.

8.3 Selective expansion

The third dimension of an overall strategy for education and training in Africa entails the considered and deliberate expansion of selected educational services. Public support for the sector has been threatened recently, and will continue to be threatened, by the fiscal austerity that grips the region. Wise leaders, however, will do what they can to protect from debilitating cuts those long-term education investments that promise the most for their nations' future.

Although the relative weights given to different elements may differ from one African country to the next, most forward-looking education sector programs will need to put some emphasis on each of the following: renewed progress toward universal primary education; new programs of extramural study

at secondary and tertiary levels; development of a broad-based system of training; and enhancement of graduate education and strengthening of research capacity.

In addressing the needs for selective expansion, safeguarding the quality of instructional staff will be essential at all levels and will require special attention. Motivated, knowledgeable, and pedagogically competent teachers are a vitally important ingredient of educational quality. Revitalization of African education involves eliminating the current constraint on classroom learning through ensuring that the instructional materials that teachers need to be effective are everywhere available. But beyond this, maintaining quality in African education as it again becomes economically feasible to encourage selective expansion of the system, will require constant professional renewal of the teaching force, a matter of particular importance to the extent the standards for teachers' years of preservice education are relaxed in order to contain costs.

In order to maintain the quality of instructional staff, the design and implementation of cost-effective systems of continuous in-service training for primary and secondary school teachers should be part of every country's education policy package. This training should focus on upgrading and updating subject-matter knowledge and on mastery of improved pedagogical methods embodied in widely available instructional materials. Distance education is likely to be the most attractive delivery mode for much of this activity. Further, teachers' progression up through the steps of the salary scale should be conditioned upon successful completion of such regular in-service courses, thereby ensuring that pay is more closely related to potential classroom productivity than it is now. For the tertiary level, beyond reestablishing the flow of standard textbooks, new monographs, and journals upon which much on-the-job professional improvement depends, upgrading of teacher quality will entail increased investments in formal postgraduate education.

(a) Renewed progress toward universal primary education

For many countries, the most important long-term investment -- in terms of its economic and social returns -- will be to renew, after adjustment and revitalization measures have begun to take hold, national progress toward universal primary education (UPE). Renewing progress toward UPE will, inevitably, require the mobilization of substantial new resources including -- but not limited to -- increased commitments of public resources. Chapters 2 and 3 showed how costly and difficult is the task of merely keeping up with population growth. Yet, two lines of evidence suggest that, in many countries, very high priority should be accorded to the goal of continued progress toward UPE, while in a few countries, universal provision of nine years of education may already be an appropriate goal. First, relative to projects and investments in other sectors, the implementation and sustainability record of education investments is good; absorptive capacity has been demonstrated. Second, there is strong (and mounting) economic evidence indicating high returns to investment in education, particularly primary education.

Those returns will be greatly attenuated or never materialize at all to the extent that the incidence of disease and malnutrition among young children goes unchecked. Policy packages for educational development must give attention to how to ensure teachable pupils, a point of increased importance

since serious nutritional deprivation in many parts of Africa has become a perennial problem. However, the linkages between child health, nutrition, preschool intellectual development, and attendance at and performance in school are particularly complex and only imperfectly understood. Regional and international collaboration in the search for more complete answers offer the best hope of developing practical policies to remedy the situation.

(b) Distance education programs

Perhaps the only viable way of addressing the massive problems of access in African education at the secondary and post-secondary levels and of continuing education for the teacher force involves the use of new extramural study programs. Accreditation examinations allow certification of an outside student's "equivalency" to having completed a conventional program. Students can thus acquire diplomas and degrees by independent study, typically guided by correspondence materials supplemented by radio broadcasts. The replicability of high-quality teaching materials allows high performance standards to be set and maintained in the equivalency system. Moreover, by their very nature, equivalency programs tend to favor the most persistent and motivated students. Often "extramural" programs actually involve the use of existing campus facilities during evenings or vacation months for tutorial sessions and laboratory work. Sometimes equivalency education takes place in specially created institutions. The unit instructional costs of extramural programs are typically only 20% to 40% of the unit costs of conventional instruction. In addition, there are often substantial savings in student transportation and (public budget) savings on living costs. During the present period of "adjustment to austerity," a country's rationale for incurring the high construction and incremental costs of the "bricks and mortar" approach to educational expansion deserves to be scrutinized.

(c) Training

Occupation-specific training is essential for African development. The questions arise not about whether to train, but rather with respect to when, where, and how to do so in the most cost-effective way. In this, experience suggests that African policymakers, like their counterparts in other parts of the world, may be tempted by the undeniable urgency of the requirements for occupation-specific skills to adopt questionable policies. As summarized in Chapter 5, there are numerous pitfalls to be avoided, but only a few bedrock principles upon which wise policymakers will with confidence rely for guidance.

It is particularly important to formulate education development strategies around an understanding of what decidedly is not true. Formal schools are, generally, neither the only nor the best place in which to train for most highly specific vocational skills. With the possible exceptions in some circumstances of commercial skills (such as typing and accounting) with wide applicability and low requirements for expensive equipment and facilities, vocational training is best provided after initial employment in venues closer to the workplace and more directly under the control of employers than are formal schools. The emphasis in Africa should be to design for each country a system of vocational training founded on this principle. This difficult task will be greatly facilitated by ensuring that there is a single place in the government -- and not necessarily, or even desirably, in the Ministry of Education -- that is charged with formulation, monitoring, and evaluation of

training policy. In this process, macroeconomic policies that stimulate provision of job-specific training -- in such areas as wage regulations, investment codes, tax incentives, and apprenticeship rules -- have a crucially important part to play, and should be prominently included in an overall policy package for improvement of education and training.

Meanwhile, the educational systems of most African countries already include schools whose mission it is to provide occupation-specific training for agriculture, industry, and the services. In the course of developing fully coherent training systems, it is imperative that current establishments operate as efficiently as possible. Here there is typically a great deal to be accomplished by way of assuring that: expensive facilities and equipment are fully utilized, curricula are maximally responsive to the (often changing) skill requirements of employers, and teachers are well endowed with real world experience in the jobs for which they train.

(d) Research and postgraduate education

The adjustment and revitalization measures for tertiary education proposed in this paper will go far when implemented toward addressing problems related to the efficiency and quality of undergraduate programs. By itself this will not bring about an increased measure of scientific and technological self-reliance in the next century. Ultimately, Africa will develop only to the extent that it can access and take advantage of the worldwide explosion of knowledge, and itself generate knowledge of particular pertinence to African problems. This is the function of Africa's top level intellectual talent: the people with masters and doctoral degrees whose careers are in university teaching and research and in the most sophisticated knowledge-intensive scientific and technical positions in government and the private sector. In fields most central to African development, such as agriculture, health, engineering, management, and the range of basic natural and social science disciplines that underlie applied work in those areas, the continent must intensify efforts to develop its own capacity not only to produce these people but also to sustain professional environments in which such highly specialized talent can be productive.

Thus the question arises of whether, when, and how Africa can develop, in a few institutions of higher learning, programs of postgraduate education and research training comparable in quality to the best available outside the continent. Can African postgraduate education be expanded and upgraded to the point where a substantial fraction of the continent's top professional talent, and more research of the highest international standards, can be produced on the continent? This is a second area (the problem of childhood nutrition and health being the first) where the dimensions of the problem are far more clearly defined than the solution for addressing it. The answer to this question is of critical long-run importance to all countries, but none can reasonably address it alone. Given the continent's limited resources and the unavoidably considerable sums required to ensure high quality critical mass efforts, international cooperation -- among African countries, and between them and their partners in other regions of the world -- to establish a coherent set of programs of excellence in national institutions will have to be central to any solution. Country-specific policy packages for education development

should include practical mechanisms for encouraging and effectively collaborating with regional and international initiatives to address such transnational issues.

8.4 The task of policy design and implementation

For most African countries, the formulation of a comprehensive and coherent education development program, derived from a balanced package of policies for adjustment, revitalization, and selective expansion, will be a new experience. Each country will organize for the task in its own way. In many countries, however, a fruitful approach to policy design might be expected to include the following: establishing a national commission with political clout to oversee the work; constituting a technical staff to support the commission; drawing for both upon the best political judgment and analytical talent of finance and planning as well as education ministries and of the nation's institutions of tertiary education and research; building a national consensus through provision of ample opportunity for public debate of emerging findings and recommendations and of their rationale; taking advantage of the experience of other African countries in developing their own education development strategies. All such activities would, of course, entail costs, and these would need to be financed. Budgetary resources would have to be sufficient to cover not only the personnel costs of such a national commission and its staff but also their operating expenses for travel, communications, publications, and specialized contractual services (such as data collection and processing, expert technical consultants, targeted research or analysis).

While careful elaboration of education development programs is urgent and essential, African capacity for implementation will ultimately determine their impact. Improvement in education management is a necessary concomitant to policy reform and must be given immediate and continuing attention.

Here the most important measures involve the potential returns to downward and outward delegation of various administrative functions. While some functions must appropriately remain at the central ministry level, and the performance of these functions will need to be improved, the toughest challenge to improving management lies closer to the classroom, at the level of individual schools and districts. African policymakers should consider how, with adequate safeguards against abuses, schools and the local communities they serve can be given increased authority in the acquisition and utilization of the resources essential to effective classroom teaching and learning.

In addition, central ministries must tend more seriously to their own management development needs, especially in the areas of performance monitoring and policy planning and analysis. Improvements in examination systems (which was mentioned above with reference both to academic standards and to distance education), in the nature and timely availability of statistical and financial accounting information, and in the numbers and qualifications of staff engaged in full-time analytical work are among the necessary measures. Incentives in many ministries of education are insufficient to attract, motivate, and retain able staff. Governments committed not only to formulation of an educational development program but also to its expeditious implementation will have imaginatively to address the issue of incentives at all levels of the educational system.

Chapter 9. INTERNATIONAL ASSISTANCE FOR AFRICAN EDUCATIONAL DEVELOPMENT

Chapter 8 recapitulated the detailed discussion of policy options for African education and training, recasting the various options within a new, three-part framework to be used by African government decision makers for developing improved policy packages on a country-by-country basis. Chapter 9 analyzes the volume and distribution in recent times of public international development assistance for African education and training, and it offers suggestions for enhancing the impact of such assistance in the future. It advocates an enlarged and better coordinated international effort, responsive to and supportive of the efforts of African governments as they design and implement new policies for adjustment, revitalization, and selective expansion of education systems.

9.1 Aid to education in the recent past

Relative to its population, sub-Saharan Africa has recently commanded a sizeable share of public international development assistance -- of what is commonly counted as "international aid."^{1/} With only about 11% of the population of the world's less developed countries (LDCs), sub-Saharan Africa in the early 1980s was receiving about 22% of international aid. Africa's annual allotment of aid is equivalent to about \$19 per inhabitant, as compared with \$8 per inhabitant for the other LDCs. As a proportion of this larger per capita amount, aid for education in Africa is about the same as it is elsewhere: roughly 10% overall (although in a third of the African countries it is above 15%).

Analysis of public international development assistance to education in Africa in the early 1980s yields a number of interesting results, the most salient of which will be summarized here. The detailed data are contained in Annex Tables A.24-A.27. Because comparable information on aid flows is extremely difficult to develop, and in any event not available except with substantial lags, two general caveats are important. First, despite the care taken in preparing Annex Tables A.24-A.27, the reported distribution of aid by use, level, and expenditure category may be distorted by difficulties inherent, for several major bilateral donors, in accounting accurately for resource flows to education which are integral parts of bilateral budget support arrangements. Second, the data say nothing about trends since the 1981-1983 period. Since then, in response to the deterioration of African education, several important providers of international assistance for the sector have introduced fundamental changes in aid distribution policies which are not yet being reflected in the available data. So caution is appropriate when considering the following points.

The first point is that these external resources are critically important to African educational development. In the early 1980s, public international development assistance to education and training in Africa -- "education aid" as defined here -- averaged \$1.3 billion per year (Table 9.1, row I.A.). This was the equivalent of about 15% of African domestic public expenditure on education.^{2/}

[Table 9.1]

Of this amount, \$367 million (28%) was used to finance training in sectors other than education. Another \$190 million (14%) was in the form of hidden subsidies incurred by donor countries in hosting the approximately 100,000 African students enrolled in educational institutions abroad. The remaining \$757 million (59% of the \$1.3 billion in total "aid" to African education and training) is the subject of the following analysis. This is what was actually channelled through education ministries and expended directly by the education sector itself. It will be referred to henceforth as direct education aid (Table 9.1, row I.A., column (a)).

The sources of direct education aid to Africa have been several. Three former colonial powers (France, Belgium, and Britain) account for 40% of it; France alone contributes more than a quarter. In the early 1980s, the dollar amounts of direct education aid provided by the United Kingdom and the United States were roughly the same, but each was less than 20% of France's aid. All other bilateral sources together supplied 27%, and multilateral sources provided 33%.

Direct education aid for the purchase of recurrent items was equivalent to roughly 17% of domestic recurrent expenditure on education in the median African country, and aid for the purchase of capital items, to about 30% of domestic capital expenditure (Table 9.2). Both proportions decrease steadily as countries become more developed. For the six low-income semi-arid African countries, direct aid is 30% of recurrent and 55% of capital expenditures on average, while for the five middle-income oil exporting countries, the corresponding figures are only 4% and 3%.

[Table 9.2]

But direct education aid per capita is less rationally distributed. The 25 low-income African countries receive \$2.90 per capita on average while the nine middle-income oil importers receive \$4.16. Statistical analysis of the country-level data in Annex Table A.25 shows that neither level of development (GDP per capita) nor magnitude of educational need (enrollment rates for the three levels) is a significant determinant of education aid per capita. The same analysis also demonstrates that the level of a recipient country's political support of donor governments in the arenas of international debate is not related to the amount of aid received. Indeed, among the variables included in the analysis, only the size of the country (population) was a significant predictor of per capita education aid, with smaller countries getting more.

The distribution of direct aid by level of education is heavily skewed toward higher levels (Table 9.3). Only about 7% (\$56 million per year in the early 1980s) of all direct aid to African education is used to finance primary education, while 34% (\$259 million) goes to the tertiary subsector. On a per-student basis, the results are staggering -- direct education aid to primary education amounts to \$1.10 per student, aid to secondary approximately \$11, aid to teacher training \$78, and aid to secondary technical education \$182; aid to higher education is \$575 per student, which is well over 500 times the amount per primary pupil. In round numbers, direct education aid to primary education covers only 2% of the cost of sending an African primary pupil to school; aid to general secondary education and teacher training covers

Table 9.1 Estimated Annual External Resource Flows to African Education and Training by Donor Group and Use, 1981-1983 Average

	(a)	(b)	(c)	(d)
	Education sector a/	Project related training b/	Cost of hosting African students abroad c/	Total
I. OECD and OPEC donors	785	394	190	1,370
A. Concessional flows ("aid")	757d/	367	190	1,314
(1) Bilateral	507	247	190	944
France	206	-	73	279
Belgium	58	-	7	66
United Kingdom	40	-	24	64
All other bilaterals	203	-	85	288
Not distributed	-	247	-	247
(2) Multilateral	250	120	0	370
International Development Association	128	54	0	183
African Development Fund	34	15	0	48
All other multilaterals	88	51	0	139
B. Non-concessional flows e/	28	27	0	56
II. East European non-market economies and Cuba	40	-	55	95
III. Non-Governmental Organizations	90	-	-	90
IV. Total	915	394	245	1,555

Note: Millions of current U.S. dollars. Based on Annex Table A.24. Columns may not add due to rounding.

a/ Disbursements to central ministries of education.

b/ Aid for training in sectors other than education.

c/ Host country subsidization of African students studying abroad, over and above any fellowships.

d/ "Direct education aid," the term used in this paper to describe concessional flows to the education sector per se.

e/ Loans from the World Bank and the African Development Bank.

Table 9.2 Direct Education Aid by Recipient Group and Expenditure Category, 1981-1983 Average

	(a)	(b)	All direct education aid		
			(c)	(d)	(e)
	Aid for recurrent expenditures as percentage of domestic recurrent education budget	Aid for capital expenditures as percentage of domestic capital education budget	Total dollars (billions per year)	Per capita (\$ per year)	As a percentage of external aid in all sectors
I. Economic Groups					
Low income semi-arid	29.5%	54.9%	\$ 89	\$3.42	9.9%
Low income other	17.0%	47.7%	\$477	\$2.58	13.1%
Middle income oil importers	11.1%	28.0%	\$118	\$4.16	10.7%
Middle income oil exporters	3.9%	2.9%	\$ 64	\$2.83	14.0%
II. Linguistic Groups					
Francophone countries	18.7%	49.9%	\$383	\$3.13	13.0%
Anglophone countries	11.8%	24.2%	\$330	\$3.38	11.3%
Other	18.4%	18.4%	\$ 65	\$1.03	9.6%
Sub-Saharan Africa	18.7%	30.5%	\$757	\$3.38	13.1%

Note: Based on Annex Table A.25.

about 4% of the cost of each student, and aid to secondary technical and tertiary education about 50%. With the bilateral donors, the lack of balance is even more dramatic: less than 4% of their direct aid goes for primary education and 42% for tertiary. Swedish aid (SIDA) with its focused program of support for primary education in selected Eastern African countries provides a notable exception to this general pattern of concentration on the tertiary subsector.

[Table 9.3]

The distribution of direct education aid by expenditure category is notable for the small proportion dedicated to financing "operating costs," which comprise salaries of nationals of the country, consumable supplies including public utilities, and all instructional materials (Table 9.4). This allocation was especially remarkable during a period in Africa when the absence of non-salary recurrent inputs to education had become the governing constraint limiting educational performance at all levels (Table 9.4).^{3/} Only 11% of direct education aid is allocated to operating costs. By contrast, 44% of aid supports technical assistance in its narrowest sense -- i.e., the provision of foreign experts.

[Table 9.4]

The predilection in favor of technical assistance is most marked in the case of the bilateral donors. None of the four major bilateral donors dedicates less than 55% of its direct education aid to technical assistance, which in essence provides employment in Africa for its own professionals; because it supplies so many teachers in secondary and tertiary institutions, France uses an astounding 83% of its aid for this purpose.^{4/} Only 13% of bilateral aid is used to finance operating costs. Bilateral donors also allocate a smaller percentage of their direct education aid than do the multilaterals to system management and to capacity building activities. These activities, unallocated by level, are crucial to long term educational development.

Whereas the bilaterals devote a disproportionately large share of their direct education aid to technical assistance, the multilaterals devote a disproportionately small share of theirs to non-capital expenditure items of all kinds. Only 35% of direct multilateral aid to education finances recurrent expenditures (as compared with 92% in the case of the bilateral donors). Only about 7% of direct multilateral aid is used to finance operating costs. UNICEF, with its focus on non-salary recurrent inputs, is a notable exception to the general practice.

9.2 The comparative advantage of aid: past and present

Caution is appropriate in drawing negative conclusions from the above six facts on the effectiveness of direct education aid to Africa. The apparent inconsistencies between Africa's current needs and the recent distribution of aid do not, by themselves, constitute evidence that aid in the past has been either misdirected or unproductive. The evolution of the context for aid and the comparative advantage of national governments and donors as sources of finance for different purposes must enter into the calculus before an evaluative assessment is possible.

Table 9.3 Direct Education Aid by Level and Source, 1981-1983 Average

	Percent of bilateral aid (\$507 million)	Percent of multilateral aid (\$250 million)	Percent of all direct aid (\$757 million)
Primary	3.4	15.7	7.4
Secondary			
General	20.9	6.1	16.0
Teacher Training	3.0	12.7	6.2
Vocational/Technical	14.9	20.9	16.9
Tertiary	42.4	17.5	34.2
Other	15.4	27.1	19.3

Note: Based on Annex Table A.26.

Table 9.4 Allocation of Direct Education Aid by Expenditure Category and Source, 1981-1983 Average

	Percent of bilateral aid (\$507 million)	Percent of multilateral aid (\$250 million)	Percent of all direct aid (\$757 million)
Capital	7.4	64.9	26.4
Recurrent			
Technical Assistance <u>a/</u>	57.5	17.4	44.3
Fellowships	20.5	9.6	16.9
Operational Costs <u>b/</u>	12.7	7.2	10.9
Other	1.9	0.9	1.5

Note: Based on Annex Table A.27.

a/ Includes provision of teachers as well as other foreign experts.

b/ Includes salary support for nationals, utilities and supplies, and instructional materials.

In an environment in which essentially all direct education aid to Africa was for discrete investment projects, the concentration of aid on small countries, on tertiary institutions, and on the provision of foreign experts and fellowships for study abroad was understandable and may even have been rational. As a general matter, donors enjoy a comparative advantage over national governments as sources of finance for investment projects that are capital-intensive; foreign-exchange-intensive; limited in the number, scope, and geographic dispersion of their components so as to minimize the burden of project implementation on scarce managerial resources; and heavily dependent upon the expertise of donor country professionals (including teachers) and on study abroad for recipient country nationals. The distribution of recent direct education aid by expenditure category (Table 9.4) was broadly consistent with this assessment of donors' comparative advantage.

So too was the distribution of direct education aid by level (Table 9.3). Intrinsic lack of donor -- and sometimes recipient -- interest in the primary subsector compared to the more visible interventions that can be made in tertiary education, and failure on both sides to appreciate the singular importance of primary education in African development contribute to the distribution of aid by educational level. But to some extent, the relative neglect of primary education in education aid can be explained also by the differences between primary and tertiary education in the ways resources for these two subsectors are generated and utilized and by the implications of these differences for the comparative advantage of national versus donor financial support.

School construction and teacher salaries typically account for more than 95% of expenditures in the primary subsector. But primary schools are highly dispersed, the cost of an individual school is miniscule from the perspective of an international donor, and no single school enjoys high visibility or separately identifiable impact. Moreover, the clear trend is to rely ever more heavily on the use of local materials in primary school construction and on local communities to finance those materials and to provide the necessary labor. The potential contribution of African governments, and since they work through those governments, the donor agencies as well, to primary school construction is thereby limited, and this is even truer today than it was in previous decades. Although African central governments do contribute relatively more to teachers' salaries than to construction at the primary level, the international donor community has been generally hesitant to finance local salaries in the context of conventional investment projects.

For tertiary and secondary technical institutions, the situation is quite the opposite. There are few establishments. Their size and location make them highly visible. Each has a discernible impact on the educational landscape. Typically, these subsectors are directly and wholly dependent upon resources from the central government. A significant portion of the capital costs of construction and equipment involve foreign exchange. And supporting staff development through financing graduate study abroad and supplying expatriate professors -- either providing them outright or supplementing institutional budgets to facilitate African direct hire -- are items easily provided by many donors.

While the distribution of direct education aid by level and expenditure category may have been a rational reflection of comparative advantage in a period characterized entirely by project-focused aid, the nature

of the current challenges facing educational development in Africa suggests that aid patterns should now change in a number of significant ways. The immediate requirement is policy reform to support education sector (i) adjustment to harsh new fiscal and demographic constraints, (ii) revitalization to achieve enhanced quality and efficiency of the current system, and (iii) carefully targeted and cost-effective expansion in the future. This leads to:

Recommendation 7. External aid flows to African education have been substantial in their aggregate amount -- the equivalent (depending on what is counted) of between 8% and 17% of what African governments themselves spend on education. Aid to education in most countries, however, has tended to focus on discrete investment projects, with little or no effective coordination among donors in support of a coherent national strategy for the sector. Moreover, compared to current African needs, disproportionate fractions of what has been given in the past have been allocated to higher education rather than primary; in the case of the multilateral donors, to capital expenditures rather than recurrent; and in the case of the bilateral donors, to technical assistance and overseas fellowships rather than other forms of recurrent expenditures. The organizational forms and substantive content of external aid to African education should be brought into conformity with the new imperative for African governments to design and implement country-specific education sector development programs supporting policy reform. As the policy context develops, the overall volume of aid to education should increase in real terms.

This is not to say that support for discrete investment projects in the education sector has no place in any African country now or anytime in the foreseeable future. It does mean, however, that programmatic assistance, in support of the implementation of policies designed to put the education sector on a viable long-term footing (combined with carefully selected investment projects whose overriding purpose is to serve as instruments of policy reform) should predominate in most countries for the remainder of the century. After measures of adjustment, revitalization, and preparation for cost-effective expansion have been aggressively and persistently implemented over a period of years, the policy environment will again be congenial for a concentration on conventional project assistance for educational expansion. Conversely, and with few exceptions, African countries unwilling to embark upon sectoral development programs are unlikely to be attractive candidates for conventional project assistance.

The design and implementation of an educational development strategy along the three dimensions of adjustment, revitalization, and selective expansion represents an unprecedented challenge to African policymakers. How can the international donor community best assist African countries to meet the challenge? The answer has two parts. First, new structures are needed to facilitate international cooperation for African educational development. Second, adjustments are needed in the established amounts and substantive

content of aid to African education. A new era in international assistance for African education and training must commence before the end of the decade. The final sections of this chapter suggest how this can be achieved.

9.3 International assistance for policy design and implementation

When an African government decides to address the issues of adjustment, revitalization, and selective expansion, it will have to confront two immediate tasks: developing the policy basis and implementation mechanisms of national programs, and mobilizing resources to pay for them. In accomplishing both of these tasks, new forms of international support will be helpful. There are a variety of ways in which international support for these two purposes might be organized. No one of them is perfect in every respect, but change is essential if donor assistance is to be made more effective. As productive starting points for more systematic discussion, two sets of ideas on this question are outlined below.

(a) Support for development of national programs

The design of a sound country-specific education development program to support policy reform is difficult. It entails the careful selection, phasing, and linking of specific policies from among the full array of policy options for cost containment, for diversifying sources of finance, for supplying vital non-salary inputs to learning, for assuring adequate standards of performance, for operation and maintenance of physical plant and equipment, for primary school expansion, for developing distance education systems for secondary and tertiary education, for expanding training opportunities, for strengthening postgraduate education and research capacity, and for improving management including in particular the incentive structure for managers at all levels and the knowledge base for decision making. As noted at the end of Chapter 8, there are a variety of steps which African governments can take to address the task of policy design and implementation. In many countries, however, this complex task may possibly require more experience and analytical talent, in more professional disciplines, and applied much more intensively, than local resources alone can supply, at least in the short run.

The international donor community should offer three related kinds of support for the national level process of policy design and implementation sketched in Chapter 8. The need is for expeditious action. Any initiatives in these areas that would take more than a year to be adopted and implemented cannot be judged an adequate response to the needs of African governments.

The first is simple: seed money, quickly provided, to cover both local and foreign costs of policy development and management improvement activities. Willingness of international donors to bear part of these extraordinary charges, perhaps on a matching basis, would provide important incentive to African governments.

In situations where budgetary resources do not begin to cover minimal operational needs of educational systems, finding funds for national task forces, technical staffs, and consultancy services can be a lengthy and ultimately unproductive process, especially if part of the requirement is for foreign exchange and if budgets beyond that of the education ministry are involved.

Central to the improvement of management of education systems is the strengthening of examination systems and the building of national capacity to conduct research on education. Over the long term, improvements in testing so as better to serve its four purposes of improving curricula, measuring performance, certification, and selection may be expected to pay for themselves in increased educational efficiency. Over the short and medium term, however, significant sums will be required for additional personnel, for training, for equipment, and for technical support. Early investments are needed to improve examinations systems so that they may play properly supportive roles in implementation of new policies.

Applied research on education, and training to do it, also costs money which, in national contexts of extreme public sector austerity, is not readily available. The payoff to such expenditures is not usually immediate, or even precisely attributable to specific interventions. And yet, the quality of national education development programs depends vitally on the availability of first-rate operations-oriented research and on expanded knowledge of internal and external efficiency. This kind of analytical capacity is generated as much by actually doing such work as by formal training to do it. International aid is a crucial source of support for both.

Second, ready access to the ongoing experience of other countries in education policy formulation and implementation should be provided by the international community to African countries that embark on serious education policy reform efforts. Intensive collaboration across countries, so that accumulating experience is widely shared, will pay high dividends, as countries grapple with common issues -- e.g., equivalency programs in secondary education, consolidation of academic programs in higher education, establishment of systems for providing textbooks in primary schools. Serving as a catalyst for such learning from shared experience is a function nicely suited to donors.

Third, the international donor community could establish and finance a source of high-quality non-political specialized technical expertise, beholden to no international donor or government in particular, which African governments could call upon for help in formulating policies at the outset and in monitoring and evaluating them for corrections during implementation. Such help could be supplied in the form of small teams that would, in periodic intensive visits over a period of months or even years, support but not supplant locally constituted task forces or commissions. The initial product of interaction of the national commission with the outside technical expertise would be a package of policies together with a detailed plan for their implementation -- i.e., an education sector development program -- ready to be considered for financing by the government and appraised by the international donor community. The interaction between national commission and outside technical expertise might continue as programs attract funding and enter implementation. This could take the form of collaborative efforts in on-going policy evaluation and mutual formulation of recommendations for policy refinements on the basis of accumulating experience. Importantly, if this technical support is provided in sensible ways, African national capacity to engage in this sort of continuous policy planning and analysis should be significantly enhanced as a result of the process.

(b) Organizing international support for program implementation

The international community should help finance the implementation of sound national education sector development programs, which will typically require more resources, sustained over a longer period of time, than can be mobilized internally. Countries that have demonstrated their willingness to address policy issues should have access to increased, longer-term, and more flexibly proffered international aid. To the extent that a country's policy package involves thorough-going reform, there are likely to be substantial one-time transition costs to a new and more sustainable policy regime. In countries with severe foreign exchange constraints, revitalization measures are likely to involve increased claims on foreign exchange for imports of essential non-salary inputs to learning. Further, in many cases the necessary policy changes constitute a sharp break with the past; their implementation must be carefully phased, and provision must be made for corrections as implementation proceeds. The international commitment to the development program must be seen from the beginning as long-term and sustained, with disbursements tranchéd against sequenced achievement of agreed-upon policy objectives, as verified in periodic joint reviews of the program. Aid must have continuity over time, something it has too often lacked in the past.

A promising approach would be to make greater use of country-specific donor consortia. A number of African governments already have successful experience in submitting their macroeconomic structural adjustment and development programs to meetings of prospective international supporters, for their review and appraisal. The Consultative Group mechanism, supported by the World Bank, has involved periodic meetings of donors to appraise the macroeconomic policy framework of a country's adjustment program, while the UNDP Round Table mechanism has been used to coordinate donor support for a country's project list within an investment program. The education sector needs its own mechanism that builds upon the strengths of both these devices.

Once an African government has prepared its own strategy for educational development -- i.e., decided upon the necessary policy reforms and identified the operational means and resource requirements for implementing them -- the international community should be invited to a forum in which the strategy can be presented in some detail, thoroughly reviewed and discussed, and broad agreements reached with respect to external support. Two useful precedents for such meetings to consider major reforms in education at the country level were established in 1986. Ghana's ambitious education sector adjustment program was the subject of a donor group meeting in Vienna, in this instance as an outgrowth of the World Bank Consultative Group set up to consider Ghana's overall adjustment program. The UNDP organized a Round Table on Education for Burundi, chaired by the Minister of Education and held in Bujumbura.

Some governments may wish to invite the World Bank to arrange similar special Consultative Group meetings dedicated to reviewing their education sector development program; other governments may wish to ask the UNDP to arrange a special Round Table for this purpose. In still other instances, governments may wish to rely upon the good offices of the ad hoc technical support teams, mentioned above, to organize a meeting. Whatever the mechanism, the important point is that each African country would be afforded an opportunity to meet periodically with all prospective donors, to review the policy framework and operational programs of its long-term educational

development strategy, monitor progress in its implementation, and agree collectively on resource requirements and sources. Much enhanced aid coordination in support of the priority needs of the recipient country would be the result.

This brings us to the question of how donors should spend their money rather than how they should organize themselves to spend it.

9.4 Future allocations of aid to African education

Whether or not new organizational forms take root, the earlier analysis of educational development challenges in Africa today and of the recent patterns of international assistance for African education suggest that modification in the substantive focus of aid is urgently needed. This will of course be easier to achieve to the extent that African governments have embraced the need for policy reform and the donor community has improved the organization of its activities.

Of the three dimensions of education reform, the first (adjustment policies that seek to diversify finance and reduce unit costs, thereby economizing public resources) will usually not depend for its implementation upon a fresh injection of financial resources. The establishment of student loan schemes, and the prospective need in some countries to accelerate the reduction or redeployment of excess personnel, by offering one-time compensation to the involved individuals, are possible exceptions. But as a general matter, the implementation of adjustment policies rarely entails purchase of goods or services, and thus presents few opportunities for increased international financial aid. Contingent upon African countries' vigorous implementation of education sector adjustment policies, however, the international donor community has a vital role to play in enabling African governments to implement policies on the other two dimensions of change -- revitalization and resuming selected expansion of African education systems. In both these areas, there is an immediate and continuing requirement for more resources. This paper concludes, therefore, with a discussion of aid for these two purposes.

(a) Aid for revitalization

Instructional materials. The revitalization of African educational systems depends first and foremost upon correcting the imbalance between salary and non-salary recurrent expenditures. Nothing short of a massive resurgence of the flow of non-salary inputs to learning is required. Instructional materials are central in this effort. For primary schools, textbooks and writing materials are the essential elements. For general secondary schools, the need is for textbooks and consumable supplies for laboratory demonstrations. In addition to these items, secondary technical schools require substantial doses of equipment maintenance and repair, including spare parts, to make the workshops functional again. In tertiary institutions, the priorities are libraries (including multiple copies of standard textbooks), equipment maintenance and repair, and consumables for laboratories and workshops. At all three levels, but particularly for secondary and tertiary education, maintenance of the physical plant is the second priority for non-salary recurrent finance.

To get a rough sense of the volume of resources required, assume that by 1988 there will be roughly 63 million African children in primary education, 16 million in secondary, and 0.5 million in tertiary, and further, that the cost per student of providing an initial stock of materials is, respectively, \$9, \$18, and \$90. The start-up costs, incurred over three years, would approximate \$900 million. Thereafter, roughly one-third of that amount would be required annually to replace texts and ensure continued flows of consumables; provision would also have to be made for expanding enrollments (for example at 4%, 8%, and 0.5% annually for primary, secondary, tertiary education, respectively). A reasonable target phased in over ten years (1991 to 2000) would be to have 60% recovery of replacement costs of materials from primary students and their families, and 95% cost recovery for secondary and tertiary materials. On these assumptions, the difference between replacement requirements and amounts recovered would decline over the decade from \$322 million to \$134 million; the total non-recovered operational cost for that decade would approximate \$2.4 billion. By the beginning of the next century, then, the instructional materials shortfall in African classrooms can be resolved for a total of about \$3.3 billion. This total would equal 33% of direct education aid under the pessimistic (and, indeed, unacceptable) assumption that there will be no increase in aid flows over the thirteen year period (1988-2000) from the 1981-1983 average annual amount. This level of response would not seriously burden the capacity of the international development assistance community.

Repair and maintenance of equipment and physical plant. The contraction of public resources for education occasioned by the economic crisis in Africa was typically first felt in the disappearance of budgeted funds for the maintenance of capital assets -- physical plant and major items of equipment. Maintenance was deferred so long that many countries now face an immense burden of costly repairs. The situation is particularly serious with respect to equipment for technical subjects in secondary and tertiary institutions, but extends as well to such fundamental items as electrical and water supply systems, sewage, lighting and ventilation systems, and even roofs and windows needed to provide basic protection from the elements. Precise calculations of the financial requirements are beyond the scope of this paper. A rough estimate (based on presumed costs of \$500 per tertiary, \$100 per secondary technical, and \$20 per general secondary student) suggests an order of magnitude of \$600 million. Contingent upon agreements in the context of an overall education development program to ensure and protect a budget share adequate to cover preventative maintenance in the future, international donors should be willing to finance this backlog of necessary rehabilitation. In some cases it will be more economical to replace obsolete equipment with state-of-the-art items than to repair and then maintain the old.

(b) Aid for selective expansion

Progress towards universal primary education. Two aspects of resuming the advance towards universal primary education are especially appropriate subjects of international aid: getting the classrooms built and assuring that students who will fill them are intellectually and physically ready to learn.

In the context of rapid growth of the school age population and continuing public austerity, sensible education development strategies will need to encourage local communities to assume greater responsibility for

financing primary school construction. Nevertheless, African governments can, with the help of international aid, be vitally important supporting actors in this drama. Leading candidates for (donor-financed) government assistance include: applied research on low cost construction techniques; establishing reasonable standards for use of space and materials; the training of school construction foremen; supplying certain standard materials that are either unavailable or priced much higher at the community level, and even paying the salaries of some workers, such as construction foremen.

But much more importantly than this, in situations in which an African government is vigorously implementing a comprehensive education policy reform package that includes capacity expansion for primary education, international donors should be prepared to disburse a reasonable portion of the funds allocated in support of the overall program upon receipt of proof of phased completion of classroom construction. More bluntly, the expansion of primary education is so central to long-term African development that, even though aid funds may not be the optimal source of finance for primary school construction, the disbursement of those funds (to be used for the purchase of other inputs to the education system, or even for general balance-of-payments support) should be in some measure contingent upon successful performance in the program of primary school construction.

In addition to classrooms, teachers, and instructional materials, primary pupils need to have benefited from and continue to enjoy minimum standards of health and nutrition in order for schooling to result in learning. In view of the sobering record of childhood disease and malnutrition in Africa, it is timely to delineate the parameters of the problem, assess the likely implications for educational systems, and identify practical solutions. Organization and support for such activity deserves international financial assistance.

Staff development for the education system. The quality of staff is obviously an essential ingredient to the quality of learning. For primary education, more teachers will be required very soon if enrollment rates are to be maintained and then grow. At the secondary level, significant expansion will probably depend upon widespread utilization of new distance learning technologies, for which a new style "teacher" will be needed. Cost-effective systems of continuous in-service pedagogical support and training of teachers at both levels take professional and financial resources to develop, and are appropriate objects of aid.

For secondary and tertiary institutions in Africa, less concerned in the short-run with expansion, new staff must be trained to replace expatriates; and, in most countries, current staff with inadequate academic credentials and insufficient professional experience need opportunities to upgrade their knowledge and skills. Ultimately most of this activity should take place in African universities. As a practical matter, however, much of the required staff development for the tertiary system cannot be conducted in Africa for the rest of this century. The requirements in this area extend far beyond matriculation of African staff (present and prospective) in formal programs of postgraduate (masters- and doctoral-level) study in donor universities, although a sizeable expansion of opportunities in this regard is extremely important. Whatever the form of staff development, international aid must help to finance it.

Distance education for secondary and tertiary education. Two ways of using distance education -- radio correspondence schools and extramural programs -- have been advanced as highly efficient mechanisms for expansion of secondary and higher education. For successful implementation, both forms depend on examination systems to assure quality and provide accreditation. Radio correspondence schools bring students together in simple classrooms, supervised by a community member, to follow lessons on radio and to work from texts and exercise books; they are highly cost-effective for lower secondary and secondary education. They enjoy the added attraction of making it possible to provide learning opportunities in small communities, a powerful device both for extending access to females and for reducing costly enrollments in boarding institutions. Extramural programs differ from radio correspondence schools principally in that they do not bring students together in supervised classrooms; unit costs are thereby further reduced and the opportunity created for individuals to continue their studies while employed. Extramural programs typically rely heavily on print, but may also utilize radio and occasional tutorial and laboratory instruction at a campus during evenings, weekends, or vacation periods. Extramural programs are particularly suitable for in-service and post-secondary education.

The international community can assist with the development of distance education in three important ways. First, as individual countries invest in radio correspondence schools and extramural programs, aid can appropriately finance the capital costs and development of sound course materials and the necessary examination systems. Second, a rich variety of correspondence material is now available from universities throughout the world. Most of this is for university level courses, but basic secondary courses in mathematics and science also exist. As a partial substitute for sending first degree students for study abroad, donor agencies could provide the foreign exchange for individuals to enroll in extramural correspondence courses without leaving their country. A good example of such a program, tailored particularly for the needs of developing countries, is an M.Sc. course in agricultural economics offered by an eminent British university.

Third, and most important, a number of donors could collaborate to help finance an African distance teaching center. Such a center would serve three main purposes: (i) it would provide a repository of experience and expertise available to assist individual countries in establishing or improving their own distance teaching capacity; (ii) it would prepare basic courses that could be adapted at minimal expense by national authorities for their own use (including, for specialized courses, for use in their conventional secondary schools and universities); and (iii) it would offer extramural programs directly, to at least a limited number of students, thereby strengthening its own course development while also providing a service, especially to small countries which are not in a position to invest heavily in this area themselves. Among the possible organizational alternatives for such an African distance teaching center would be to create it as a semi-autonomous entity, rather like the International Institute of Educational Planning (IIEP), under the UNESCO umbrella.

Training. International aid to training is now mostly of two quite different sorts. First, in the context of projects that donors help to finance in all sectors, assistance is often provided to support the training of those responsible for building, operating, or maintaining the project. Experience with such "project-related training" has been generally favorable, although its

focus on discrete projects usually has precluded the longer-term attention to building the capacity of local training institutions. Second, international aid for training has supported the construction of vocationally oriented secondary schools, usually for the purpose of providing graduates with specific job skills for the agriculture, commercial, or industrial sector. While evaluation of the economic impact of such schools is in its infancy, it is known that industrial-sector technical schools (and to a lesser extent, agricultural ones) are enormously expensive relative to more general education in secondary-level mathematics and science and that the labor market outcomes for students of those technical schools -- in terms of occupational placement and earnings -- are often less successful than what was envisioned.

In this situation, there are three broad directions that international aid should take to strengthen training. First, for projects outside the education sector, increases in the proportion of resources devoted to project-related training will have high payoff. At the same time, however, attention must be given to the development of local training capacity in key economic sectors; sector-related training investments, designed to build institutional capacity, merit donor support. Second, aid for job-specific training in secondary schools should concentrate on maximizing the utilization of existing schools and minimizing their unit costs; all such assistance should provide for rigorous evaluation to determine whether labor market returns are in fact being realized. Third, and most important, international donors should expand their support for development and utilization of training institutions that serve employers and that are partially controlled and financed by them. These institutions would provide training programs mostly for existing employees or new hires whose initial job assignment has already been decided; completion would be recognized with a certificate rather than an academic degree; and the menu of course offerings would evolve with labor market needs. Assisting in the development and financing of such employment-related training institutions, in the context of an overall education sector development program, is a high priority for international aid.

Expanded capacity for graduate education and research. Beyond rationalizing the provision of first degree tertiary education, Africa must intensify efforts to develop its own capacity to conduct research and to provide postgraduate education and research training of world class standards in fields central to African development. Leading candidates for attention in this respect are agriculture and health (including the natural science disciplines which underlie them), management (including the underlying social sciences), and engineering.

Determining which institutions will be participants in postgraduate programs of excellence, in which fields and at what levels will not be easy -- for African governments or for their international partners. Questions of international and regional comparative advantage must be squarely faced, since resources will never be forthcoming for every country in Africa or even for the continent as a whole to develop capacity at the highest level in all fields and subfields. Ultimately decisions must be made on a discipline-by-discipline basis and in light of an assessment of regional requirements. Sometimes an institution serving as the site for a program of excellence in one field may also need to be designated as the site for programs in closely related fields with which professional interaction is crucial and for which facilities and

equipment may be shared. Scale and sustainability are crucial matters. Fragmentation in space and time will defeat the purpose. Some internationalization of management control and finance may provide prudent insurance against such risks.

Here there is a strong case for African governments and donor agencies to establish jointly some overall coordinating mechanism to ensure reasonable efficiency in developing the programs of excellence concept. A useful first step in this direction would be the appointment of a small but very high level study group to consider the evidence and render a judgment on the feasibility, desirability, organization, priority fields, and possible sources of finance for a sustained effort to transform the quality of African postgraduate education and research.

9.5 Call to action

The new era in international assistance for African education and training should commence without delay. Donors and African governments need now to come together to determine what concrete steps should be taken to support adjustment, revitalization, and selective expansion of African education. This paper will have served its purpose if it stimulates: African governments to rethink policies for educational development, international agencies to reflect on how their aid can be improved and enlarged, and all parties to enter into a new partnership to provide Africa with the stock of human skills indispensable for development in the next century.

SELECTED BIBLIOGRAPHY

Note: In the course of preparing this policy paper, background papers were commissioned on various pertinent themes. These reviews and the extensive bibliographies that they contain are the major sources for this paper. In the bibliography that follows, the specially commissioned background papers are indicated by an asterisk enclosed in parentheses (*) after the entry.

- African Development Bank. 1986. Education Sector Strategy Paper. Abidjan, Cote d'Ivoire.
- Aklilu Habte, G. Psacharopoulos, and S. Heyneman. 1985. Education and Development: Views from The World Bank. Washington, D.C.: The World Bank.
- Armitage, J. and R. Sabot. Forthcoming. "Efficiency and Equity Implications of Subsidies of Secondary Education in Kenya." In David Newberry and Nicholas Stern, eds., The Theory of Taxation for Developing Countries. New York: Oxford University Press.
- Auerhan, J., S. Ramakrishnan, R. Romain, G. Stoikov, L. Tiburcio, and P. Torres. 1985. Institutional Development in Education and Training in Sub-Saharan Countries. Discussion Paper Series No. EDT22. Education and Training Department, The World Bank, Washington, D.C.
- Avalos, B. and W. Haddad. 1981. Review of Teacher Effectiveness Research in Africa, Middle East, Malaysia, Philippines & Thailand: A Synthesis of Results. Ottawa: International Development Research Centre.
- Behrman, J. and N. Birdsall. 1983. "The Quality of Schooling: Quantity Alone is Misleading." American Economic Review 73 (Dec.):926-46.
- Benson, C. 1987. "Taxonomies of Skill Development: A Search for Criteria to Predict the Relative Efficiency of Alternative Programs of Occupational Training." Discussion Paper Series (forthcoming), Education and Training Department, The World Bank, Washington, D.C.
- Bertrand, T. and R. Griffin. 1984. "Financing Education in Kenya." Discussion Paper. Country Policy Department, The World Bank, Washington, D.C.
- Birdsall, N. 1983. "Demand for Primary Schooling in Rural Mali: Should User Fees Be Increased?" Discussion Paper No. 1983-8. Country Policy Department, The World Bank, Washington, D.C.
- _____. 1985. "Cost Recovery in Health and Education: Bank Policy and Operations." Population, Health, and Nutrition Department, The World Bank, Washington, D.C.

- Bowcock, D. 1985. "Languages of Sub-Saharan Africa: A Listing by Country." Education and Training Department, The World Bank, Washington, D.C. (*)
- Bowman, M.J. and R.H. Sabot. 1982. "Human Resources in Africa: A Continent in Rapid Change." Background paper presented at the 1982 Conference of African Governmental Experts on Technical Cooperation Among African Countries on Human Resources Development and Utilization, April.
- Bray, M. 1986. New Resources for Education. London: Commonwealth Secretariat.
- Caldwell, J.C. 1979. "Education as a Factor in Mortality Decline: An Examination of Nigerian Data." Population Studies 33:395-413.
- _____ and P. Caldwell. 1985 "Education and Literacy as Factors in Health." In Scott B. Halstead, Julia A. Walsh, and Kenneth S. Warren, eds., Good Health at Low Cost. New York: The Rockefeller Foundation.
- Cochrane, S.H. 1979. Fertility and Education: What Do We Really Know? Baltimore, Maryland: Johns Hopkins University Press.
- _____. 1980. Educational Differentials in Mortality of Children. Paper presented at the Annual Meeting of the Population Association of America. April.
- Cochrane, S.H., D.J. O'Hara, and J. Leslie. 1980. The Effects of Education on Health. World Bank Staff Working Paper No. 405. The World Bank, Washington, D.C.
- _____. 1982. "Parental Education and Child Health: Intracountry Evidence." Health Policy and Education (2):213-50.
- Colclough, C. 1980. Primary Schooling and Economic Development: A Review of the Evidence. World Bank Staff Working Paper No. 399. The World Bank, Washington, D.C.
- Court, D. and K. Kinyanjui. 1986. "African Education: Problems in a High-Growth Sector." In Robert J. Berg and Jennifer Seymour Whitaker, eds., Strategies for African Development. Berkeley, California: University of California Press.
- Denison, E. 1979. Accounting for Slower Economic Growth. Washington, D.C.: The Brookings Institution.
- Dorsey, B.J. 1986. "Development and Reform in Education - Zimbabwe: A Case Study." Paper presented at the 1986 Comparative and International Education Society Conference, Toronto, Canada.
- Dougherty, C. 1987. "Cost-Effectiveness of Training Delivery Modes: A Review." Education and Training Department, The World Bank, Washington, D.C.
- Dutcher, N. 1982. The Use of First and Second Languages in Primary Education: Selected Case Studies. World Bank Staff Working Paper No. 504. The World Bank, Washington, D.C.

- Eicher, J.C. 1985. Educational Costing and Financing in Developing Countries with Special Reference to Sub-Saharan Africa. World Bank Staff Working Paper No. 655. The World Bank, Washington, D.C.
- Eisemon, T.O. 1986. "Benefitting from Basic Education in Developing Countries: A Review of Research on the Educational Antecedents of School Effects." Centre for Cognitive and Ethnographic Studies, McGill University, Toronto.
- Foster, P. 1965. "The Vocational School Fallacy in Development Planning." In C.A. Anderson and M.J. Bowman, eds., Education and Economic Development. Chicago: Aldine Press.
- _____. 1982. "The Educational Policies of Postcolonial States." In L. Anderson and D. Windham, eds., Education and Development: Issues in the Analysis and Planning of Post-Colonial Societies. Lexington, Massachusetts: Lexington Books.
- _____. 1985. "Education in Sub-Saharan Africa: Some Preliminary Issues." Education and Training Department, The World Bank, Washington, D.C. (*)
- Fryer, M. 1986. "Females as Beneficiaries of Bank Operations in Africa." Education and Training Department, The World Bank, Washington, D.C. (*)
- Fuller, B. 1985. Raising School Quality in Developing Countries: What Investments Boost Learning?. Discussion Paper Series No. EDT7. Education and Training Department, The World Bank, Washington, D.C.
- Haddad, W. 1978. Educational Effects of Class Size. World Bank Staff Working Paper No. 280. The World Bank, Washington, D.C.
- _____. 1979. Educational and Economic Effects of Promotion and Repetition Practices. World Bank Staff Working Paper No. 319. The World Bank, Washington, D.C.
- _____. 1985. Teacher Training: A Review of World Bank Experience. Discussion Paper Series No. EDT21. Education and Training Department, The World Bank, Washington, D.C.
- Hakuta, K. 1985. "Generalizations from Research in Second Language Acquisition and Bilingualism." Paper delivered to the House Education and Labor Committee. Washington, D.C.
- Haveman, R. and B. Wolfe. 1984. "Schooling and Economic Well-Being: The Role of Non-Market Effects." Journal of Human Resources XIX (summer):408-28.
- Hawes, H. and T. Coombe, eds. 1986. Education Priorities and Aid Responses in Sub-Saharan Africa. Institute of Education, University of London, London.
- Heyneman, S. 1980a. "Evaluation of Human Capital in Malawi." World Bank Staff Working Paper No. 420. The World Bank, Washington, D.C.
- _____. 1980b. "Instruction in the Mother Tongue: The Question of Logistics." Canadian and International Education, Vol. 9, Number 2.

- _____, 1983. "Education During a Period of Austerity: Uganda, 1971-1981." Comparative Education Review 27 (October):403-13.
- _____ and D. Jamison. 1980. "Textbook Availability and Other Determinants of Student Learning in Uganda." Comparative Education Review 24 (June): 206-220.
- _____ and W. Loxley. 1983. "The Effect of Primary-School Quality on Achievement across Twenty-Nine High- and Low-Income Countries." American Journal of Sociology 88 (June):1162-94.
- Hicks, N. 1980. Economic Growth and Human Resources. World Bank Staff Working Paper No. 408. The World Bank, Washington, D.C.
- Hinchliffe, K. 1985. Issues Related to Higher Education in Sub-Saharan Africa. World Bank Staff Working Paper No. 780. The World Bank, Washington, D.C. (*)
- _____. 1986. The Monetary and Non-Monetary Returns to Education in Africa. Discussion Paper Series No. EDT46. Education and Training Department, The World Bank, Washington, D.C. (*)
- Horn, R. and A.M. Arriagada. 1986. The Educational Attainment of the World's Population: Three Decades of Progress. Discussion Paper Series No. EDT37. Education and Training Department, The World Bank, Washington, D.C.
- Houle, C. 1973. The External Degree. San Francisco, Washington, and London: Jossey-Bass Publishers.
- Huffman, W. and J. Klock. Forthcoming. "Assistance for Education." In Anne O. Krueger, C. Michalopoulos, and Vernon W. Ruttan, eds., The Impact of Development Assistance to LDCs. Baltimore, Maryland: Johns Hopkins University Press.
- Imhoof, M. and P. Christensen, eds. 1986. Teaching English by Radio: Interactive Radio in Kenya. Washington, D.C.: Academy for Educational Development, Inc.
- Inkeles, A. and D.H. Smith. 1974. Becoming Modern: Individual Change in Six Developing Countries. Cambridge, Massachusetts: Harvard University Press.
- Jamison, D. 1982. "Reduced Class Size and Other Alternatives for Improving Schools: An Economist's View." In Gene V. Glass, Leonard S. Cahen, Mary Lee Smith, and Nikola N. Filby, eds., School Class Size. Beverly Hills and London: Sage Publications.
- _____ and L. Lau. Forthcoming. "Education and Economic Growth in Sub-Saharan Africa." Education and Training Department, The World Bank, Washington, D.C. (*)
- _____ and P. Moock. 1984. "Farmer Education and Farm Efficiency in Nepal: The Role of Schooling, Extension Services, and Cognitive Skills." World Development, 12 (January): 67-86.

- Jimenez, E. 1986. "Public Subsidization of Education and Health in Developing Countries: A Review of Efficiency and Equity." World Bank Research Observer 1 (Jan.):111-30.
- _____. Forthcoming. "Structure of Educational Costs: Multiproduct Cost Functions for Primary and Secondary Schools in Latin America." Economics of Education Review.
- Kaluba, L.H. and P.P.W. Achola. 1985. "Community Financing of Schools in Commonwealth SADC Countries, A Non-Government View from Zambia." Paper presented at the Commonwealth Regional Workshop with Special Reference to Southern Africa, Gaborone, Botswana. Commonwealth Secretariat, London.
- King, K. 1986. "Manpower, Technology, and Employment in Africa: Internal and External Policy Agendas." In Robert J. Berg and Jennifer Seymour Whittaker, eds., Strategies for African Development. Berkeley: University of California Press.
- Knight, J.B. and R.H. Sabot. 1986. Overview of Educational Expansion, Productivity and Inequality: A Comparative Analysis of the East African Natural Experiment. Discussion Paper Series No. EDT48. Education and Training Department, The World Bank, Washington, D.C. (*)
- Lee, K. Forthcoming. Universal Primary Education: An African Dilemma. Discussion Paper Series. Education and Training Department, The World Bank, Washington, D.C.
- Lindauer, D.L. 1984. "Public Sector Pay in Africa: An Analytical Framework." Country Policy Department, The World Bank, Washington, D.C.
- _____, O.A. Meesook, and P. Suebsaeng. 1986. Government Wage Policy in Africa: Summary of Findings and Policy Issues. Discussion Paper Series No. 1986-24. Country Policy Department, The World Bank, Washington, D.C.
- Livingstone, I. 1985. "Perception of the Intended and Implemented Mathematics Curriculum." Mimeographed. University of Illinois.
- Lockheed, M., D. Jamison, and L. Lau. 1980. "Farmer Education and Farm Efficiency: A Survey." Economic Development and Cultural Change 29 (October):37-76.
- Lucas, R.E.B. and O. Stark. 1985. "Motivations to Remit: Evidence from Botswana." Journal of Political Economy 93 (October):901-18.
- MacMillan, D.L. 1981. Language Policies for African Primary Education: Summary of the Anglophone Research Literature. Discussion Paper No. 28. Population and Human Resources Division, The World Bank, Washington, D.C.
- Malawi, Government of. 1984. The Impact of the Increase in School Fees on Primary School Enrollments in 1983. Lilongwe: Ministry of Education and Culture.
- Mass, J. and G. Criel. 1982. Primary School Participation and Its Internal Distribution in Eastern Africa. World Bank Staff Working Paper No. 511. The World Bank, Washington, D.C.

- Mbanefoh, G.F. 1980. "Sharing the Cost and Benefits of University Education in Nigeria." International Journal of Educational Development 1(July):231-43.
- McMahon, W. Forthcoming. "The Relation of Education and R&D to Productivity Growth in the Developing Countries of Africa." Economics of Education Review.
- Michael, R. 1982. "Measuring Non-Monetary Benefits of Education: A Survey." In W. McMahon and T. Geske, eds., Financing Education. Urbana: University of Illinois Press.
- Middleton, J., Habteselassie Woldemariam, and C. Mayo-Brown. 1986. Management in World Bank Education Projects: Analysis of Experience. Discussion Paper Series No. EDT42. Education and Training Department, The World Bank, Washington, D.C.
- Millot, B., F. Orivel, and J. Rasera. 1987. L'aide exterieure a l'education en Afrique sub-saharienne. Discussion Paper Series No. EDT65. Education and Training Department, The World Bank, Washington, D.C. (*)
- Mingat, A. 1985. "La Diversification des Sources de Financement de l'Enseignement Superieur en Afrique Francophone." Course material prepared for a seminar organized by the Economic Development Institute, World Bank, Washington, D.C.
- _____, and G. Psacharopoulos. 1985. "Financing Education in Sub-Saharan Africa: Issues of Equity and Efficiency of Investment - Some Policy Alternatives." Finance and Development 22 (March):35-38.
- _____, and J. Tan. 1985. Improving the Quality-Quantity Mix in Education: A Stimulation of Policy Tradeoffs. Discussion Paper Series No. EDT15. Education and Training Department, The World Bank, Washington, D.C.
- _____. 1985b. "Subsidization of Higher Education versus Expansion of Primary Enrollments: What Can a Shift of Resources Achieve in Sub-Saharan Africa?" International Journal of Educational Development 5:259-68.
- _____. 1986. "Expanding Education through User Charges: What Can Be Achieved in Malawi and Other LDCs?" Economics of Education Review, No. 3.
- _____. 1987. "The Economic Returns to Investment in Project-Related Training: Some Evidence from World Bank Projects." Education and Training Department, The World Bank, Washington, D.C.
- Moock, P. 1981. "Education and Technical Efficiency in Small-Farm Production." Economic Development and Cultural Change 29 (July):723-39.
- Mundangepfufu, R.M. 1986. Economies in the Provision of Facilities for Teaching Secondary School Science. Economic Development Institute, Education and Training Design Division, The World Bank, Washington, D.C.
- Neumann, P. 1980. Publishing for Schools: Textbooks and the Less Developed Countries. World Bank Staff Working Paper No. 398. The World Bank, Washington, D.C.

- Noor, A. 1985. "Strengthening Educational Management: A Review of World Bank Assistance, 1963-83." Mimeographed. Education and Training Department, The World Bank, Washington, D.C.
- Oduntan, S.O. 1975. "The Health of Nigerian Children of School Age." Brazzaville: Regional Office, World Health Organization.
- Organization of African Unity. 1981. Lagos Plan of Action for the Economic Development of Africa, 1986 - 2000. International Institute for Labour Studies, Geneva.
- _____. 1985. Africa's Priority Programme for Economic Recovery 1986 - 1990. Twenty-first Session of the Assembly of Heads of State and Government of the OAU. Addis Ababa, Ethiopia.
- Paul, S. 1982. Managing Development Programs: The Lesson of Success. Boulder, Colorado: Westview Press.
- Perraton, H., ed. 1982. Alternative Routes to Formal Education: Distance Teaching for School Equivalency. World Bank Research Publication. Baltimore and London: The Johns Hopkins University Press.
- _____, C. Block, M.L. Fryer, P.L. Spain, and M. Young. 1986. Distance Education: An Economic and Educational Assessment of Its Potential for Africa. Discussion Paper Series No. EDT43. Education and Training Department, The World Bank, Washington, D.C. (*)
- Psacharopoulos, G. 1980. Higher Education in Developing Countries: A Cost-Benefit Analysis. World Bank Staff Working Paper No. 440. The World Bank, Washington, D.C.
- _____. 1984. "The Contribution of Education to Economic Growth: International Comparisons." In John Kendrick, ed., International Productivity Comparisons and the Causes of Slowdown. Cambridge, Massachusetts: Ballinger.
- _____. 1985. "Returns to Education: A Further International Update and Implications." Journal of Human Resources XX (Fall):583-604.
- _____. 1987. "To Vocationalize or Not to Vocationalize? That is the Curriculum Question." International Review of Education, No. 2.
- _____ and A.M. Arriagada. 1986. "The Educational Attainment of the Labor Force: An International Comparison or Moving Beyond Enrollment Ratios for Assessing Priorities in Educational Investment." Mimeographed. Education and Training Department, The World Bank, Washington, D.C.
- _____ and W. Loxley. 1985. Diversified Secondary Education and Development: Evidence from Colombia and Tanzania. Baltimore, Maryland: Johns Hopkins University Press.
- _____ and M. Woodhall. 1985. Education for Development: An Analysis of Investment Choices. New York: Oxford University Press.

- Rogers, D.C. 1972. "Student Loan Programs and the Returns to Investment in Higher Levels of Education in Kenya." Economic Development and Cultural Change 2 (January):243-59.
- Romain, R. 1985. Lending in Primary Education: Bank Performance Review, 1962-1983. Discussion Paper Series No. EDT20. Education and Training Department, The World Bank, Washington, D.C.
- Schultz, T.P. 1975. "The Value of the Ability to Deal with Disequilibria." Journal of Economic Literature 13 (September):827-46.
- _____. 1985. "School Expenditures and Enrollments, 1960-1980: The Effect of Income, Prices and Population Growth." Discussion Paper No. 487. Economic Growth Center, Yale University, New Haven, Connecticut.
- Smock, A.C. 1981. Women's Education in Developing Countries: Opportunities and Outcomes. New York: Praeger.
- Somerset, H.C.A. 1987. "Examination Reforms: The Kenya Experience." Discussion Paper Series No. EDT64. Education and Training Department, The World Bank, Washington, D.C.
- _____. 1985. "The Quality of Elementary Education in Africa: Some Key Issues." Education and Training Department, The World Bank, Washington, D.C. (*)
- Stoikov, V.L. 1975. "The Economics of Recurrent Education and Training." International Labour Organization, Geneva.
- Stromquist, N.P. 1986. "Empowering Women Through Knowledge: Policies and Practices in International Cooperation in Basic Education." School of Education, Stanford University, Palo Alto, California.
- Tan, J. Forthcoming. "Private Direct Cost of Secondary Schooling in Tanzania." International Journal of Development Economics.
- _____, K.H. Lee, and A. Mingat. 1984. User Charges for Education: The Ability and Willingness to Pay in Malawi. World Bank Staff Working Paper No. 661. The World Bank, Washington, D.C.
- Thevenin, T. 1981. Pedagogical Implications of Language Policy in African Schools: A Review of the Francophone Literature. Discussion Paper No. 81-29. Population and Human Resources Division, The World Bank, Washington, D.C.
- Thobani, M. 1983. Charging User Fees for Social Services: The Case of Malawi. World Bank Staff Working Paper No. 572. The World Bank, Washington, D.C.
- United Nations. 1966-1985. Yearbook of National Accounts Statistics. New York.
- _____. 1986. Programme of Action for African Economic Recovery and Development 1986 - 1990. (A/RES/S-13/2)

United Nations Economic Commission for Africa. 1984. Human Resources in Africa. Monograph No. 13. New York.

_____. 1985. Report of the Second Conference of Vice-Chancellors/Presidents/Rectors of Institutions of Higher Learning in Africa. Mbabane, Swaziland, February 1985. (E/ECA/CM.11/47)

_____. 1986. Africa's Development Priorities and the Role of Institutions of Higher Learning: The Next Five Years. ECA/AAU Third Conference of Vice-Chancellors, Presidents and Rectors of the Institutions of Higher Learning in Africa. Harare, Zimbabwe, January 1987. (E/ECA/AAU/ED/86/3)

Unesco. 1961. Final Report. Conference of African States on the Development of Education in Africa, Addis Ababa, Ethiopia, May.

_____. 1983. African Languages as Instructional Media. Dakar: Unesco Regional Office for Education in Africa.

_____. 1985. African Community Languages and Their Use in Literacy and Education. Dakar: Unesco Regional Office for Education in Africa.

Unicef. 1985. Within Human Reach: A Future for Africa's Children. Unicef Report. New York.

Wheeler, D. 1980. Human Resource Development and Economic Growth in Developing Countries: A Simultaneous Model. World Bank Staff Working Paper No. 407. The World Bank, Washington, D.C.

Windham, D.M. 1987. Internal Efficiency and the African School. Discussion Paper Series No. EDT47. Education and Training Department, The World Bank, Washington, D.C. (*)

Wolff, L. 1984. Controlling the Costs of Education in Eastern Africa: A Review of Data, Issues, and Policies. World Bank Staff Working Paper No. 702. The World Bank, Washington, D.C.

Woodhall, M. 1983. Student Loans as a Means of Financing Higher Education: Lessons from International Experience. World Bank Staff Working Paper No. 599. The World Bank, Washington, D.C.

World Bank. 1980a. Education Sector Policy Paper. Washington, D.C.: The World Bank.

_____. 1980b. World Development Report, 1980. New York: Oxford University Press.

_____. 1981. Accelerated Development in Sub-Saharan Africa: An Agenda for Action. Washington, D.C.: The World Bank.

_____. 1984. Toward Sustained Development in Sub-Saharan Africa: A Joint Program of Action. Washington, D.C.: The World Bank.

_____. 1986a. Financing Adjustment With Growth in Sub-Saharan Africa, 1986-90. Report No. 6082. Washington, D.C.: The World Bank.

_____. 1986b. Population Growth and Policies in Sub-Saharan Africa. Washington, D.C.: The World Bank.

_____. 1986c. Financing Education in Developing Countries. Washington, D.C.: The World Bank.

_____/Unesco. 1984. Joint Study of Technical Assistance in Bank-Financed Education Projects. Report of the Steering Committee to the President of the World Bank and the Director General of Unesco.

Young, M., H. Perraton, J. Jenkins and T. Dodds. 1980. Distance Teaching for the Third World: The Lion and the Clockwork Mouse. London, Boston and Henley: Routledge and Kegan Paul.

DEFINITIONS AND ACRONYMS

International Organizations

World Bank The term "World Bank" as used in this paper refers to an international lending institution comprised of the International Bank for Reconstruction and Development (IBRD) and its affiliate, the International Development Association (IDA). The common objective of these institutions is to help raise standards of living in developing countries by channeling financial resources from developed countries to the developing world. Lending is only done for productive purposes that stimulate economic growth in its Borrower countries, traditionally through development projects in capital infrastructure. The World Bank's development strategy also places an emphasis on investments that can directly affect the well-being of the poor in developing countries by making them more productive and integrating them as active partners in the development process.

IBRD The International Bank for Reconstruction and Development (IBRD) is the World Bank affiliate that provides lending for projects in developing countries that are at the more-advanced stages of economic and social growth.

IDA The International Development Association (IDA) was established as a World Bank affiliate to provide assistance for the same purposes as the IBRD, but primarily in the poorer developing countries -- those with an annual per capita gross national product of less than \$791 (in 1983 dollars), on terms that bear less heavily on their balance of payments than IBRD loans.

UNESCO The United Nations Educational, Cultural and Scientific Organization (UNESCO) is a specialized agency of the United Nations responsible for promoting collaboration among UN Member States through education, science and culture. Its activities in education include promoting information exchanges between countries, convening meetings of ministers of education, and providing advisory services or carrying out, as part of its operational work, specific practical projects in its Member States.

ILO The International Labour Organisation (ILO) is a specialized intergovernmental agency of the United Nations that seeks to improve labor conditions, raise living standards and promote productive employment. Its activities include research, advisory services and the provision of technical assistance to UN Member States.

ADB The African Development Bank Group (ADB) is an international lending institution that encourages economic development in its African Member States by financing projects in the agriculture, transport, public utilities, industry, education and health sectors.

ECA The United Nations Economic Commission for Africa (ECA) is a regional intergovernmental organization established in 1958 to foster the economic development and integration of its Member States through concerted intergovernmental cooperation to promote strategies for regional development.

Levels of Schooling

Primary Education, Basic Education The first level of education, in which students follow a common curriculum. In "primary" education students receive instruction in primary or elementary schools that are part of the formal education system. These schools span grades 1-4, 1-5, 1-7 or 1-8, with curricula of communication, mathematics and science. "Basic" education generally refers to instruction in literacy and numeracy skills for out-of-school youths and adults.

Secondary Education Secondary education requires at least four years of primary preparation for entry. Curricula at this level are either of a general academic nature or oriented to the teaching of job-related skills. Through a "general" curriculum students follow an academic program that typically leads to admission to a post-secondary institution; under both "technical/vocational" and "agricultural" curricula students are prepared for direct entry into a trade or occupation. This level may span any subset of Grades 5-12.

Post-Secondary, Tertiary, Higher Level Education Education at this level requires, as a minimum condition of entry, the successful completion of education at the secondary level or proof of equivalent knowledge or experience. Instruction is given in varied types of institutions such as universities, vocational/technical training institutes, and teacher training institutes.

General Terms

Correspondence Education A type of distance education through which students receive textbooks for individual study in their homes and supplementary mass media broadcasts on the subject matter. Each textbook includes exercises to be completed and mailed to a postal tutor for marking and providing individual feedback to the student.

Curriculum A set of courses in a field of study, often constituting an area of specialization at the higher levels of the education cycle.

Distance Education, Distance Teaching An education delivery system that uses a variety of media and a system of feedback to provide education to people who are unable to attend traditional schools. Distance education usually involves a combination of media broadcasts, use of printed materials by the student, and some kind of face-to-face study. Distance teaching programs can range from in-school programs in which broadcasts are used to supplement learning activities in the classroom, to out-of-school programs such as "correspondence lessons" in which students may never meet their tutors and may have little or no contact with the regular educational system.

Diversified Secondary Education Education at the secondary level adapted to the expected roles of school leavers through the introduction of practical or occupational subjects into an otherwise completely academic program. Two models are prevalent. The first introduces practical subjects (industrial

arts, home economics, agriculture) at the lower secondary level to provide prevocational orientation and to develop a positive attitude toward work. The second includes a general academic stream plus one or more specialized occupational streams, usually at the upper secondary level, depending on the economic life of the surrounding area.

Enrollment Ratio School enrollment, both public and private, as a percentage of a given population age group. A gross enrollment ratio is the total number of students enrolled at a given educational level divided by the population of the age group for that level. This ratio may include under-age and repeater students. A net enrollment ratio is calculated by using only that part of the total number of students enrolled that corresponds to the specific age groups defined for that level.

Equivalency Program A teaching program that provides opportunities for education to students who would otherwise be unable to attend formal schools and that emphasizes the acquisition of knowledge rather than the place where the knowledge is acquired. Equivalency programs exist for all levels of schooling.

Extramural Degree (Certificate), External Degree (Certificate) A degree (certificate) awarded by a university to students participating in equivalency programs in which students study the curriculum on their own without attendance at formal classes.

External Examination An examination set by an organization outside of the individual school, and independent of it, that is administered to a large number of students from different schools, to allow comparison of results across schools.

Incomplete School A school that does not have the full number of grades for the level of education provided.

Nonformal Education Education and training for out-of-school youths and adults in classes, courses, or activities intended to promote learning but not constituting part of the formal school system and not leading to formal qualifications such as diplomas or specific trade standards. Nonformal education typically concentrates on short programs of a few months duration.

Non-Governmental Organization (NGO) A non-profit organization with private membership that provides development assistance. Also called Private Voluntary Organizations (PVOs), the NGOs include foundations, lay and religious aid associations, and non-governmental cooperatives.

Technical Education Training in specialist skills for the higher-level skilled worker, typically in pre-employment training institutions such as polytechnics. Administration of technical education is commonly the responsibility of ministries of education, labor or employment, or comes under the authority of specific industries. Courses of study under technical education usually include a general education component.

Training Instruction in job-related skills to prepare students for direct entry into a trade or occupation. Such instruction can take place in training centers, through apprenticeships, and/or at the place of employment ("on-the-job" training).

Vocational Education Training in craft or trade skills for the semi-skilled worker that is typically school-based and under the direction of ministries of education.

FOOTNOTES

Introduction

1/ Most of the discussion and all of the Africa-wide statistics in this paper refer to just 39 countries south of the Sahara. Whenever the term "Africa" or "African" is used, it refers only to these countries and their residents. The Statistical Annex to this paper lists and provides full comparative information on these 39 countries. Excluded from the Annex tables are statistics on Namibia and South Africa; on the North African countries; and on six small countries with populations of less than one half million people in 1983 (Cape Verde, Comoros, Djibouti, Equatorial Guinea, Sao Tome and Principe, and Seychelles), for which only the most basic information is provided (in Annex Table C.1). For the other countries socio-economic statistics are given through 1984, but internationally comparable educational statistics were available only through 1983. This is an unfortunate end-year since, in many respects, 1983 was the worst year of the economic crisis, and it is possible that a number of educational indicators have subsequently begun to improve.

2/ For broader analysis than could be included in this paper on education strategies, several important documents are available. The "Lagos Plan of Action," adopted by African Heads of State under the auspices of the Organization of African Unity (OAU) in April 1980, analyzes Africa's problems and puts forward a comprehensive plan for addressing them [OAU, Lagos Plan of Action for the Economic Development of Africa, 1981]. In accordance with the policies set forth in this plan, the OAU met again and agreed to a set of activities and priorities; these were spelled out in a second document [OAU, Africa's Priority Programme for Economic Recovery, 1985]. Subsequently, the U.N. General Assembly adopted a set of resolutions pertaining to African development [United Nations, Programme of Action for African Economic Recovery and Development, 1986]. Concurrently with these efforts, the World Bank has published its own series of special reports on macroeconomic issues and development requirements for Africa. The first in this series, Accelerated Development in Sub-Saharan Africa, was released in 1981; the fourth and most recent, Financing Adjustment With Growth in Sub-Saharan Africa, appeared in 1986.

Chapter 1

1/ The gross enrollment ratio divides the enrollment by the total, male and female, population of school age. The official age range differs from country to country depending on the structure of the education system. The gross enrollment ratio is an accurate measure of the school system's capacity relative to the school age population. By including students who are outside the official age range, however, it overstates the percentage of this population that is actually enrolled. The net ratio, which excludes overage and underage children, is conceptually superior, but generally this information is not available. Problems with gross enrollment statistics are further discussed in the Technical Notes pertaining to Annex Tables A.7-A.9.

2/ The numbers of schools and teachers in this paragraph and the next, while based on the figures in Annex Table A.10, reflect reasonable assumptions about missing data in the table.

3/ UNESCO local-currency expenditure figures were inflated to reflect 1983 prices using country-specific GDP deflators and then converted to U.S. dollars using official 1983 exchange rates.

4/ This probably overstates somewhat the decline in "real" education expenditure since, in most African countries in recent years, teachers' salaries (which comprise approximately 90% and 70% of recurrent expenditure in primary and secondary education, respectively, and above 50% in tertiary) have not gone up as rapidly as prices in general as reflected in the GDP deflator.

5/ In terms of weighted means, as distinct from medians, education's share went from above 16% throughout the 1970s to below 12% in 1983. This more precipitous drop in education's share of expenditure after 1980 reflects, to a very large extent, what was happening in a single large country -- Nigeria. See Annex Table A.14.

6/ This figure includes a small part -- about 3% -- from the International Bank for Reconstruction and Development (as distinct from the International Development Association) of the World Bank Group and from the African Development Bank (as distinct from the African Development Fund) that was given in the form of market-rate loans. All of the remaining 97% can be counted as concessional aid to African education.

Chapter 2

1/ Africa's high population growth rate reflects the fact that mortality rates have declined very rapidly in recent years while fertility rates remain, for the most part, at the same high levels that prevailed historically. In 1960 the crude death rate in sub-Saharan Africa was 25 per thousand and the crude birth rate 49 per thousand. By 1983, owing to significant improvements in health care, the death rate had fallen to 17 per thousand, but the birth rate remained practically unchanged. Birth rates actually increased over this period in a handful of countries.

2/ In technical terms, the rate of return is the discount rate that equates the present value of the economic costs and benefits of an investment. Private rates of return to education are calculated using after-tax earnings differentials and only those educational costs that are actually borne by students and their families. Social rates of return, which are more useful for public policy, are based on before-tax earnings differentials and on education's full resource costs. The full costs of education equal the sum of all private costs plus any subsidies given.

Chapter 3

1/ Although comparative education data more recent than 1983 were unavailable for the purposes of this report, there is evidence of some economic recovery in the period since 1983, and this may have led to some recovery in enrollments.

2/ This becomes less true as one moves up the educational ladder. At the tertiary level, in fact, per student expenditure is on a par with that in the industrialized countries -- see Section 6.2(c).

3/ Expenditure per higher education student in constant dollars for the median country was \$2,462 in 1970, \$3,090 in 1975, \$2,798 in 1980, and \$2,710 in 1983. The weighted mean of expenditure per student did fall sharply, from \$6,461 in 1975 (for 23 countries where information was available) to \$2,365 in 1983 (for 28 countries), but most of this decline was accounted for by Nigeria, a large country where central government expenditure fell from \$14,621 to \$2,181.

Chapter 4

1/ A fourth way to reduce pupil-teacher ratios, theoretically, is to reduce the number of teachers in each class. It is assumed, however, that each primary school class is taught by only one teacher and that this parameter, therefore, cannot be further reduced.

2/ An increase of the proportion of the public education budget allocated to the primary subsector does not mean that public expenditures on secondary and higher education must necessarily decline in absolute terms; they can remain the same or even go up while primary education's share is going up, so long as the total public budget is growing. As argued in Chapter 6, however, most of the increase in total resources for higher education, which is urgently required in most countries, will have to come, not from growth of the public budget, but rather from increased private financial contributions to the subsector.

Chapter 5

1/ It is worth remembering that virtually none of the now developed nations of Europe and North America had secondary enrollment ratios above 10% at the beginning of this century, and for the most part, ratios above 20% were achieved only in the post-World War II era.

2/ The reader should be reminded that comparisons of educational costs across countries are fraught with problems. The problems here are over and above those associated more generally with the use of exchange rates to convert local currency figures into U.S. dollars for purposes of making international comparisons. In education, the collection of statistics has evolved largely as a by-product of education administration and not as a consequence of a policy concern to analyze and control costs. This explains why data on students, teachers, and physical facilities, while certainly not adequate (cf. Box 1.1), are nevertheless much more plentiful than data on educational costs and financing. Great caution must be exercised, therefore, when using the cost data now available as a basis for formulating policy.

3/ Other seriously underrepresented groups include the children of families living in very remote rural areas, especially nomads, and the children of political and economic refugees. This last group is, unfortunately, a rapidly growing and often neglected element in today's Africa.

4/ The only real exceptions, where females comprise above 45% of secondary enrollments, are Lesotho, Botswana, and Swaziland (in these three, virtual parity had already been achieved by 1960), Mauritius and Madagascar. In five more countries -- the Congo, Gabon, Kenya, Sudan, and Zimbabwe -- females now comprise between 40% and 45% of enrollments.

Chapter 6

1/ The comments in this chapter on the costs and financing of higher education are based on robust empirical evidence. Findings on higher education outputs, however, must be offered more in the nature of hypotheses worthy of intensive efforts in individual countries to gather and analyze the data necessary for validation or rejection, than as incontrovertibly demonstrated facts. Except for simple head counts of graduates, there is presently a dearth of reliable data on the levels of outputs from the higher education system and especially on changes in those levels over time. African governments and their international partners in development should launch the necessary data generation and analytic activities, and be prepared to act promptly on their results.

Chapter 7

1/ The "headteacher" is used throughout this chapter to refer to the headmaster or headmistress of a primary school.

Chapter 9

1/ "International aid" as defined in this paper comprises all flows of resources, financial and in-kind, originating from "Western" (OECD and OPEC) bilateral and multilateral sources and containing a "concessional" element of at least 25%. It includes, therefore, in addition to grants, all loans carrying repayment terms that are sufficiently below what would be attainable commercially for the grant component to exceed 25%. Excluded under this definition are non-concessional loans from Western governments and the multilateral banks (the World Bank and the African Development Bank) and, of course, all loans from private commercial banks. Also excluded from this definition are all flows from East Bloc countries (which do not routinely divulge the pertinent figures) and flows from private, non-governmental organizations. Non-concessional and East Bloc aid accounted for only about 7% of flows to the education sector in 1981-83, so the definition of aid used here encompasses virtually all flows. However, data on aid flows are not notable for their accuracy or consistency, and the figures given here should be interpreted as giving rough approximations rather than exact magnitudes.

2/ If one adds to this amount the aid flows from non-Western governments (the East Bloc, plus Egypt and India), those from private, non-governmental organizations, and the non-concessional flows from the multilateral banks ("hard" loans from the World Bank and African Development Bank), the grand total of external flows to African education and training comes to nearly \$1.6 billion annually. This is the equivalent of about 17% of African domestic public expenditure on education.

3/ The inconsistency between Tables 9.2 and 9.4 in the breakdown of direct education aid between capital and recurrent expenditures is due to differences in the sources for the two tables and in the way these sources treat technical assistance; some technical assistance, used for capacity-building purposes, is classified by some sources as an investment item rather than as recurrent expenditure.

4/ For reasons noted in the second paragraph of section 9.1 above, it is likely that these figures do not give a completely accurate picture of current reality, although the overall conclusion would probably not change even with more complete data.

STATISTICAL ANNEX

STATISTICAL ANNEX

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INTRODUCTION

This three-part statistical annex provides information on principal features of educational, social and economic development for 39 countries in sub-Saharan Africa. Excluded are Namibia and South Africa, all North African countries, and (with the exception of one table) six countries with populations of less than one-half million people in 1984 (Cape Verde, Comoros, Djibouti, Equatorial Guinea, Sao Tome and Principe, and the Seychelles).

The education indicators in Part A were calculated from data supplied by UNESCO and supplemented with information from World Bank data files and country documentation. The social and economic indicators in Part B are collected annually by the World Bank on its developing member countries, and the tables in that annex were prepared in collaboration with the Economic Analysis and Projections Department and the Population, Health and Nutrition Department of the World Bank. The data presented in Part C supplement or summarize those displayed in Parts A and B.

Although considerable effort has been made to standardize the data, nevertheless, statistical methods, coverage, practices and definitions differ from country to country. Moreover, weaknesses in developing countries' statistical systems limit the availability and reliability of the data. The indicators should, therefore, be used to characterize the trends and major differences between countries and country groups rather than to show precise quantitative measures of those trends and differences.

The format of Parts A and B follows that used in the Bank's World Development Report. Countries are classified into two major economic groups -- low-income and middle-income economies. The 25 countries with per capita incomes of less than \$400 are classified as low-income economies. The 14 middle-income economies are those with per capita incomes of greater than \$400. The economies are further classified to distinguish low-income semi-arid from other low-income economies and middle-income oil exporters from middle-income oil importers.

Within each economic group, countries are listed in ascending order of income per capita with the exceptions of Chad, Mozambique and Angola for which per capita income could not be calculated. The alphabetical list in the key on the next page shows the table reference number of each country.

Summary measures of all indicators appear in the bands within each table. The letter w following a summary measure indicates a weighted mean; the letter m, a median; and the letter t, a total. Readers should exercise caution in comparing the summary measures for different indicators, groups, and years or periods. Data coverage is not uniform for all indicators, and variations around central tendencies can be large. The technical notes, which outline the methods, concepts, definitions and data sources, should be referred to before using any of the data.

The tables also provide summary measures for countries grouped by language. Those that could not be classified as either Anglophone or Francophone are included in the "Other" category.

The Annex also contains maps which have been prepared for the convenience of the reader. The denominations used, and the boundaries shown do not imply any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries on the part of the World Bank and its affiliates.

ALPHABETICAL LIST OF COUNTRIES AND KEY TO TABLES

In each annex table, countries are listed in their economic group in ascending order of GNP per capita except for Chad, Mozambique and Angola for which no GNP per capita could be calculated. The reference numbers in the alphabetical list below reflect the order in the tables.

Angola	39	Malawi	9
Benin	17	Mali	1
Botswana	33	Mauritania	26
Burkina Faso	2	Mauritius	34
Burundi	12	Mozambique	25
Cameroon	36	Niger	3
Central African Rep.	15	Nigeria	35
Chad	6	Rwanda	18
Congo	37	Senegal	24
Cote d'Ivoire	30	Sierra Leone	20
Ethiopia	7	Somalia	5
Gabon	38	Sudan	23
Gambia	4	Swaziland	32
Ghana	22	Tanzania	11
Guinea	21	Togo	14
Guinea-Bissau	10	Uganda	13
Kenya	19	Zaire	8
Liberia	27	Zambia	28
Lesotho	29	Zimbabwe	31
Madagascar	16		

In the tables, the following symbols are used:

- . Not available.
 - (.) Less than half the unit shown.
 - ./ Data included in another category.
 - * Data are for a year other than that specified.
 - + Estimated or provisional data.
-
- w Weighted mean.
 - m Median.
 - t Total.

Due to rounding, the totals and sub-totals shown in the tables may not correspond to the sums of their components.

COUNTRIES CLASSIFIED BY LINGUISTIC AND ECONOMIC STATUS

<u>Francophone</u> (n=18)	<u>Anglophone</u> (n=16)	<u>Other</u> (n=5)
Low-income semi-arid (n=6)		
2 Burkina Faso	4 Gambia, The	5 Somalia
6 Chad		
1 Mali		
3 Niger		
Low-income other (n=19)		
17 Benin	22 Ghana	7 Ethiopia
12 Burundi	19 Kenya	10 Guinea-Bissau
15 Central African Republic	9 Malawi	25 Mozambique
21 Guinea	20 Sierra Leone	
16 Madagascar	23 Sudan	
18 Rwanda	11 Tanzania	
24 Senegal	13 Uganda	
14 Togo		
8 Zaire		
Middle-income oil importers (n=9)		
30 Cote d'Ivoire	33 Botswana	
26 Mauritania	27 Liberia	
	29 Lesotho	
	34 Mauritius	
	32 Swaziland	
	28 Zambia	
	31 Zimbabwe	
Middle-income oil exporters (n=5)		
36 Cameroon	35 Nigeria	39 Angola
37 Congo, The		
38 Gabon		

LIST OF MAPS

Total population, 1984

Population density, 1984

Language groups, 1984

Income groupings, 1984

Enrollment in primary schools, 1960

Enrollment in primary schools, 1983

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"EDUCATION INDICATORS"**

Table 1. Primary enrollment

Total primary enrollment [] average annual growth rate [] percent
female

Table 2. Secondary enrollment

Total secondary enrollment [] average annual growth rate [] percent
female

Table 3. Distribution of secondary enrollment by type of education

Percent of students enrolled in general secondary [] in teacher training
[] in vocational/technical schools [] Percent of female secondary
students enrolled in general secondary [] in teacher training [] in
vocational/technical schools

Table 4. Tertiary enrollment

Total tertiary enrollment [] average annual growth rate [] percent
female

Table 5. Distribution of tertiary enrollment by field of study

Percent of tertiary students enrolled in Arts [] in Sciences [] Percent
of female tertiary students enrolled in Arts [] in Sciences

Table 6. Total enrollment

Total enrollment [] average annual growth rate [] percent female

Table 7. Primary enrollment ratios

Number of primary students enrolled as a percent of age group [] total
[] male [] female

Table 8. Secondary enrollment ratios

Number of secondary students enrolled as a percent of age group [] total
[] male [] female

Table 9. Tertiary enrollment ratios

Number of tertiary students enrolled as a percent of age group [] total
[] male [] female

Table 10. Teachers and schools

Number of teachers [] in primary schools [] in secondary schools
[] Number of primary schools [] Number of primary students per school

Table 11. Student-teacher ratios

Number of students per teacher [] in primary schools [] in secondary
schools [] in tertiary education

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Recurrent expenditure on education as a percent of total public
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expenditure on education as a percent of total public expenditure on
education [] average annual growth rate

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Percent of public recurrent expenditure allocated to primary education
[] to secondary education [] to tertiary education

Table 17. Public recurrent expenditure per primary pupil

Expenditure per pupil [] as a percent of GNP per capita [] Expenditure per pupil on teaching materials

Table 18. Public recurrent expenditure per secondary student

Expenditure per student [] as a percent of GNP per capita [] Expenditure per student on teaching materials

Table 19. Public recurrent expenditure per tertiary student

Expenditure per student [] as a percent of GNP per capita

Table 20. Distribution of primary public recurrent expenditure by purpose

Percent primary recurrent expenditure allocated to administration
[] teachers' emoluments [] teaching materials [] scholarships
[] welfare services

Table 21. Distribution of secondary public recurrent expenditure by purpose

Percent secondary recurrent expenditure allocated to administration
[] teachers' emoluments [] teaching materials [] scholarships
[] welfare services

Table 22. Distribution of tertiary public recurrent expenditure by purpose

Percent tertiary recurrent expenditure allocated to administration
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[] welfare services

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Teachers' average salary [] in primary schools [] in secondary schools
[] as a multiple of income per capita

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Amount in dollars [] Percentage for primary [] for secondary [] for tertiary education [] Other

Table 27. External education aid from OECD and OPEC donors by purpose

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Table 28. External public debt of the education sector

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Table 2. Languages of Sub-Saharan Africa

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Table 3. Population growth and projections

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Table 4. School-age population growth and projections

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Table 5. Demography and fertility

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Table 8. Growth of production

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surplus/deficit as a percentage of GNP

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Percent adult literacy [] Percent gross primary enrollment rate []
Progression rate from primary to secondary [] Percent females in total enrollment

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Number of students [] Index numbers [] Average annual growth rate []
Gross enrollment ratio

Table 3. Estimated Average Years of Education Attended by Working Age Population

Total [] 1970 [] 1975 [] 1980 [] 1983

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Rates of literacy [] 1962 [] 1985

Table 5. Cross-National Comparisons of Achievement in Mathematics, Reading, and Science

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Table 6. Countries Grouped by Gross Primary Enrollment Ratios

Gross primary enrollment ratio [] Enrollment growth rate minus growth rate of school-age population [] Repeaters as percentage of primary enrollment [] Females as percent of primary enrollment [] Pupil-teacher ratio [] Public recurrent expenditure per pupil [] Public education expenditures as percent of total expenditures [] Public recurrent expenditures on primary education as percent of total public recurrent expenditures on education

**Table 7. Enrollment Characteristics and Education Expenditures by
Secondary Enrollment Groups**

Gross secondary enrollment ratio [] Rate of secondary to primary enrollments [] Progression rate from primary to secondary [] Females as percent of secondary enrollments [] Public expenditure on education as a percent of GNP [] Secondary as percent of public recurrent expenditure on education

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Public expenditure per secondary student [] in constant 1983 dollars [] as percent of GNP per capita [] as multiple of expenditure per primary pupil [] Secondary student-teacher ratio [] Secondary repetition rate

Table 9. Percentage of Nationals Among Teaching Staff in Post-Primary Education

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PART A
EDUCATION INDICATORS

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Table 1. Primary enrollment

Country	Total			Average annual growth rate (percent)			Enrollment as a percentage of total		
	1960	1970	1980	1960-70	1970-80	1980-83	1960	1970	1983
1 Mali	65	204	293	7.0	0.2	20	16	37	
2 Sierra Leone	57	103	202	6.6	11.1	29	35	57	
3 Niger	27	89	229	11.4	3.0	30	35	56	
4 Gambia, The	7	17	43	9.6	11.0	31	31	58	
5 Senegal	23	50	272	13.2	-6.7	29	24	56	
6 Chad	72	183	239	6.2	4.8	11	25	27	
Low-income other	6546	12357	24927	2.6	3.1	31	37	44	
7 Ethiopia	224	2131	2497	11.9	3.4	24	31	30	
8 Togo	1350	3089	4207	5.1	3.4	27	37	43	
9 Malawi	285	363	847	3.4	1.5	36	36	42	
10 Burundi	18	75	75	7.4	0.2	30	30	33	
11 Tanzania	453	856	1560	10.3	1.8	34	34	39	
12 Rwanda	42	182	301	3.3	19.6	24	24	40	
13 Uganda	393	1110	1617	4.8	3.1	32	32	43	
14 Congo	103	229	506	6.3	-3.3	31	31	39	
15 Central African Rep.	48	176	291	6.7	3.8	19	28	33	
16 Madagascar	450	930	1311	4.3	4.3	44	44	49	
17 Benin	89	135	300	3.3	6.2	28	28	33	
18 Nigeria	264	419	762	3.0	2.6	31	31	40	
19 Kenya	781	1428	2927	8.4	3.3	32	32	41	
20 Sierra Leone	86	300	546	6.4	3.1	34	34	40	
21 Guinea	97	230	284	3.0	2.5	26	26	32	
22 Ghana	303	967	1435	3.3	0.8	35	35	44	
23 Sudan	344	824	1604	7.5	3.0	27	27	41	
24 Senegal	129	263	523	6.1	8.3	32	32	40	
25 Mozambique	416	497	1307	3.9	-3.8	38	34	43	
Middle-income oil exporters	1400	2871	4232	5.7	3.0	42	44	47	
26 Mauritania	11	32	91	11.0	8.9	19	28	39	
27 Liberia	59	120	227	7.0	0.4	29	33	47	
28 Cote d'Ivoire	289	495	1042	4.6	4.6	40	40	47	
29 Lesotho	136	163	245	3.0	6.3	42	40	50	
30 Gabon	239	503	1000	5.1	7.4	26	26	38	
31 Lebanon	486	736	1233	4.8	14.6	45	45	48	
32 South Korea	34	69	136	6.1	5.0	50	50	50	
33 Botswana	36	83	198	8.1	4.9	58	53	53	
34 Mauritius	112	150	129	0.7	2.5	47	49	49	
Middle-income oil importers	3457	5215	7715	4.0	1.4	34	38	44	
35 Nigeria	2913	3516	4358	8.1	1.1	37	37	44	
36 Congo, People's Rep.	448	423	1346	3.6	4.3	44	44	46	
37 Congo, People's Rep.	116	241	391	6.3	4.6	33	33	40	
38 Gabon	57	101	166	5.1	3.3	38	38	40	
39 Angola	104	434	1178	13.5	-4.8	33	36	46	
Sub-Saharan Africa	11853	20971	47040	7.1	2.9	34	39	44	
French-speaking countries	3953	6022	12188	3.8	4.1	30	38	42	
English-speaking countries	7117	11285	29799	6.5	3.2	33	41	47	
Other	784	1463	5134	11.9	-3.8	30	31	38	

Figures with an asterisk are for 1982; those with a cross are estimated. See the technical notes.

Totals are not necessarily equal to the sum of the components.

Notes: For data comparability and coverage, see the technical notes.

Table 2. Secondary enrollment

Country	Total (thousands)				Average annual growth rate (percent)				Enrollment as a percentage of total			
	1960	1970	1980	1983 #/	1960-80	1980-83	1960-83	1970-83	1960	1970	1980	1983 #/
Low-income economies	510	1000	4497	4614	11.4	8.9	11.4	10.2	23	30	36	31
Low-income east-Asia	13	75	211	204	14.1	11.2	14.1	10.3	18	21	28	28
1 Haiti	3	33	68	76	14.4	4.2	14.4	4.2	17	22	28	28
2 Burma	3	11	28	36	11.7	9.3	11.7	9.3	17	27	34	34
3 Niger	1	7	39	40	10.1	7.4	10.1	7.4	17	27	37	37
4 Cambodia, The	2	5	10	14	9.1	14.1	9.1	14.1	26	29	31	31
5 Somalia	2	7	44	61	16.1	13.1	16.1	13.1	16	16	34	34
6 Chad	2	11	24	44	13.0	17.4	13.0	17.4	7	8	15	15
Low-income other	493	1723	4283	5730	11.4	8.3	11.4	10.2	23	31	33	33
7 Ethiopia	24	133	439	580	13.3	9.7	13.3	9.7	14	23	34	34
8 Zaire	59	248	1293	2132	17.1	18.5	17.1	18.5	24	22	28	28
9 Malawi	3	12	20	24	9.6	8.3	9.6	8.3	27	27	29	29
10 Gambia-Diason	1	4	5	10	4.4	24.1	4.4	24.1	36	36	19	19
11 Tanzania	22	45	79	82	6.3	1.3	6.3	1.3	32	32	33	33
12 Rwanda	3	8	19	24	9.3	11.6	9.3	11.6	28	28	37	37
13 Uganda	28	77	138	154	8.0	6.4	8.0	6.4	21	21	33	33
14 Togo	3	22	133	182	17.4	-6.4	17.4	-6.4	22	22	29	29
15 Central African Rep.	2	11	43	50	16.4	8.9	16.4	8.9	19	19	26	26
16 Madagascar	29	113	189	223	9.8	5.7	9.8	5.7	33	44	44	44
17 Botswana	3	18	90	123	13.7	17.7	13.7	17.7	27	27	30	30
18 Swaziland	4	10	11	13	11.4	11.4	11.4	11.4	34	34	34	34
19 Kenya	24	134	428	517	13.0	6.3	13.0	6.3	30	30	40	40
20 Sierra Leone	8	35	57	78	10.4	11.0	10.4	11.0	27	27	28	28
21 Guinea	10	43	98	124	-0.2	-0.2	-0.2	-0.2	21	21	28	28
22 Guinea	191	532	646	734	12.4	4.3	12.4	4.3	18	18	27	27
23 Sudan	48	133	304	307	11.4	9.7	11.4	9.7	14	14	41	41
24 Senegal	13	59	96	114	10.4	3.9	10.4	3.9	27	27	33	33
25 Mozambique	13	43	103	121	10.0	3.6	10.0	3.6	36	36	38	38
26 Mauritania	1	4	22	28	19.8	12.2	19.8	12.2	5	5	11	11
27 Liberia	3	17	38	53	13.1	-0.7	13.1	-0.7	16	16	29	29
28 Zambia	3	36	102	113	14.0	4.1	14.0	4.1	23	23	34	34
29 Lesotho	3	7	23	29	10.9	8.2	10.9	8.2	33	33	36	36
30 Cape d'Verde	12	70	238	249	16.0	4.1	16.0	4.1	12	12	29	29
31 Zimbabwe	28	30	75	61	3.6	3.6	3.6	3.6	36	36	40	40
32 Botswana	2	8	24	29	14.1	6.3	14.1	6.3	44	44	49	49
33 Botswana	1	3	21	23	18.3	6.0	18.3	6.0	46	46	54	54
34 Mauritius	24	43	82	79	4.4	-1.1	4.4	-1.1	32	32	40	40
High-income oil exporters	79	242	642	1042	13.1	6.0	13.1	6.0	32	32	37	37
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	1	4	22	28	19.8	12.2	19.8	12.2	5	5	11	11
27 Liberia	3	17	38	53	13.1	-0.7	13.1	-0.7	16	16	29	29
28 Zambia	3	36	102	113	14.0	4.1	14.0	4.1	23	23	34	34
29 Lesotho	3	7	23	29	10.9	8.2	10.9	8.2	33	33	36	36
30 Cape d'Verde	12	70	238	249	16.0	4.1	16.0	4.1	12	12	29	29
31 Zimbabwe	28	30	75	61	3.6	3.6	3.6	3.6	36	36	40	40
32 Botswana	2	8	24	29	14.1	6.3	14.1	6.3	44	44	49	49
33 Botswana	1	3	21	23	18.3	6.0	18.3	6.0	46	46	54	54
34 Mauritius	24	43	82	79	4.4	-1.1	4.4	-1.1	32	32	40	40
26 Mauritania	167	137	2344	2400	14.2	9.3	14.2	9.3	21	21	32	32
27 Congo, People's Rep.	16	77	234	269	14.3	7.2	14.3	7.2	17	17	29	29
28 Congo, People's Rep.	6	34	188	214	18.8	3.3	18.8	3.3	20	20	30	30
29 Angola	16	38	191	133	-16.8	-16.8	-16.8	-16.8	40	40	42	42
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	1	4	22	28	19.8	12.2	19.8	12.2	5	5	11	11
27 Liberia	3	17	38	53	13.1	-0.7	13.1	-0.7	16	16	29	29
28 Zambia	3	36	102	113	14.0	4.1	14.0	4.1	23	23	34	34
29 Lesotho	3	7	23	29	10.9	8.2	10.9	8.2	33	33	36	36
30 Cape d'Verde	12	70	238	249	16.0	4.1	16.0	4.1	12	12	29	29
31 Zimbabwe	28	30	75	61	3.6	3.6	3.6	3.6	36	36	40	40
32 Botswana	2	8	24	29	14.1	6.3	14.1	6.3	44	44	49	49
33 Botswana	1	3	21	23	18.3	6.0	18.3	6.0	46	46	54	54
34 Mauritius	24	43	82	79	4.4	-1.1	4.4	-1.1	32	32	40	40
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	167	137	2344	2400	14.2	9.3	14.2	9.3	21	21	32	32
27 Congo, People's Rep.	16	77	234	269	14.3	7.2	14.3	7.2	17	17	29	29
28 Congo, People's Rep.	6	34	188	214	18.8	3.3	18.8	3.3	20	20	30	30
29 Angola	16	38	191	133	-16.8	-16.8	-16.8	-16.8	40	40	42	42
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	1	4	22	28	19.8	12.2	19.8	12.2	5	5	11	11
27 Liberia	3	17	38	53	13.1	-0.7	13.1	-0.7	16	16	29	29
28 Zambia	3	36	102	113	14.0	4.1	14.0	4.1	23	23	34	34
29 Lesotho	3	7	23	29	10.9	8.2	10.9	8.2	33	33	36	36
30 Cape d'Verde	12	70	238	249	16.0	4.1	16.0	4.1	12	12	29	29
31 Zimbabwe	28	30	75	61	3.6	3.6	3.6	3.6	36	36	40	40
32 Botswana	2	8	24	29	14.1	6.3	14.1	6.3	44	44	49	49
33 Botswana	1	3	21	23	18.3	6.0	18.3	6.0	46	46	54	54
34 Mauritius	24	43	82	79	4.4	-1.1	4.4	-1.1	32	32	40	40
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	167	137	2344	2400	14.2	9.3	14.2	9.3	21	21	32	32
27 Congo, People's Rep.	16	77	234	269	14.3	7.2	14.3	7.2	17	17	29	29
28 Congo, People's Rep.	6	34	188	214	18.8	3.3	18.8	3.3	20	20	30	30
29 Angola	16	38	191	133	-16.8	-16.8	-16.8	-16.8	40	40	42	42
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	1	4	22	28	19.8	12.2	19.8	12.2	5	5	11	11
27 Liberia	3	17	38	53	13.1	-0.7	13.1	-0.7	16	16	29	29
28 Zambia	3	36	102	113	14.0	4.1	14.0	4.1	23	23	34	34
29 Lesotho	3	7	23	29	10.9	8.2	10.9	8.2	33	33	36	36
30 Cape d'Verde	12	70	238	249	16.0	4.1	16.0	4.1	12	12	29	29
31 Zimbabwe	28	30	75	61	3.6	3.6	3.6	3.6	36	36	40	40
32 Botswana	2	8	24	29	14.1	6.3	14.1	6.3	44	44	49	49
33 Botswana	1	3	21	23	18.3	6.0	18.3	6.0	46	46	54	54
34 Mauritius	24	43	82	79	4.4	-1.1	4.4	-1.1	32	32	40	40
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	167	137	2344	2400	14.2	9.3	14.2	9.3	21	21	32	32
27 Congo, People's Rep.	16	77	234	269	14.3	7.2	14.3	7.2	17	17	29	29
28 Congo, People's Rep.	6	34	188	214	18.8	3.3	18.8	3.3	20	20	30	30
29 Angola	16	38	191	133	-16.8	-16.8	-16.8	-16.8	40	40	42	42
High-income oil importers	208	333	3007	4462	14.4	10.4	14.4	10.4	22	22	38	38
26 Mauritania	1	4	22	28	19.8	12.2	19.8	12.2	5	5	11	11
27 Liberia	3	17	38	53	13.1	-0.7	13.1	-0.7	16	16	29	29
28 Zambia	3	36	102	113	14.0	4.1	14.0	4.1				

Table 3. Distribution of secondary enrollment by type of education

	Percent of all secondary students enrolled in:						Percent of all female secondary students enrolled in:					
	General		Teacher Training		Vocational/ Technical		General		Teacher Training		Vocational/ Technical	
	1970	1983 a/	1970	1983 a/	1970	1983 a/	1970	1983 a/	1970	1983 a/	1970	1983 a/
Low-income economies	85	93	7	3	8	4	86	94	7	3	7	3
	90	92	3	3	9	9	89	92	3	2	9	6
Low-income semi-arid	89	91	3	2	8	7	89	87	3	3	8	10
	89	92	4	2	7	6	90	87	3	1	4	8
1 Mali	86	92	5	4	10	5	83	86	4	3	9	10
2 Burkina Faso	82	88	3	1	15	12	73	83	1	(.)	23	16
3 Niger	91	96	7	2	3	2	83	.	12	.	(.)	.
4 Gambia, The	94	93	3	1	4	6	96	91	3	1	1	8
5 Somalia	96	85	1	3	3	12	97	87	1	5	2	8
6 Chad	86	94	4	0	10	5	92	94	3	(.)	5	6
Low-income other	85	93	7	3	8	4	85	94	8	3	7	3
	90	91	3	3	9	5	88	93	5	2	6	4
7 Ethiopia	94	.	2	.	5	.	91	.	1	.	8	.
8 Zaire	75	.	16	.	10	.	72	.	10	.	9	.
9 Malawi	91	92	7	6	2	3	89	92	11	8	(.)	(.)
10 Guinea-Bissau	78	91	9	7	13	3	82	97	9	3	9	(.)
11 Tanzania	92	87	8	12	(.)	1	88	87	12	12	(.)	1
12 Burundi	49	57	38	30	14	14	33	53	63	38	1	10
13 Uganda	84	91	8	6	7	3	.	91	.	8	.	1
14 Togo	90	94	1	9	10	6	83	94	(.)	(.)	16	5
15 Central African Rep.	86	94	2	1	12	5	75	87	3	1	20	12
16 Madagascar	90	.	2	.	9	.	93	.	2	.	6	.
17 Benin	96	.	1	.	3	.	98	.	(.)	.	1	.
18 Rwanda	72	37	16	37	12	26	66	21	18	49	16	31
19 Kenya	93	96	5	3	2	2	93	96	7	3	(.)	2
20 Sierra Leone	96	.	2	.	2	.	97	.	2	.	1	.
21 Guinea	95	92	2	1	3	7	93	89	2	2	3	9
22 Ghana	60	96	17	2	23	2	56	98	19	2	25	(.)
23 Sudan	97	94	2	2	1	9	98	95	2	2	(.)	3
24 Senegal	90	91	1	1	9	8	88	93	1	(.)	11	7
25 Mozambique	62	87	3	3	35	10	.	93	.	1	.	6
Middle-income oil importers	93	94	2	5	5	1	93	98	3	1	4	1
	92	95	3	1	4	3	94	95	4	1	5	2
26 Mauritania	91	92	9	4	(.)	5	.	93	.	4	.	2
27 Liberia	92	95	2	1	5	4	94	95	2	1	5	4
28 Lesotho	93	95	3	3	3	2	94	94	4	4	2	2
29 Lesotho	82	97	10	(.)	8	3	88	97	11	(.)	8	3
30 Cote d'Ivoire	90	85	2	14	7	1	90	.	3	.	7	.
31 Zimbabwe	99	100	(.)	(.)	2	(.)	97	100	(.)	(.)	3	(.)
32 Swaziland	95	98	3	1	2	1	94	.	5	.	1	.
33 Botswana	75	89	5	4	19	7	77	89	6	6	16	5
34 Mauritius	.	99	.	(.)	.	1	.	100	.	(.)	.	(.)
Middle-income oil exporters	81	89	7	2	12	9	82	78	6	2	12	20
	82	89	3	2	16	10	85	73	3	1	12	13
35 Nigeria	82	90	9	2	9	8	85	.	8	.	7	.
36 Cameroon	73	76	6	1	23	23	68	73	3	1	29	26
37 Congo, People's Rep.	89	89	2	1	10	10	88	86	1	1	11	13
38 Gabon	83	68	1	13	16	19	87	73	1	14	12	13
39 Angola	76	95	3	2	21	3	79	.	5	.	16	.
Sub-Saharan Africa	85	91	6	3	9	6	85	92	7	3	8	5
	90	92	3	2	8	5	89	93	3	2	7	5
Francophone countries	83	85	7	5	10	10	83	82	7	3	10	13
	87	91	3	1	10	8	88	87	3	1	9	10
Anglophone countries	86	92	7	2	7	5	87	96	7	2	4	1
	92	95	5	2	3	3	94	95	5	2	2	2
Other	85	90	2	3	13	7	87	91	3	3	10	7
	78	89	3	3	13	7	86	93	3	3	8	6

Note: For data comparability and coverage, see the technical notes.
Percentages may not total 100 due to rounding.

a. Figures with an asterisk are for years other than those specified. See the technical notes.

Table 4. Tertiary enrollment

	Total (thousands)				Average annual growth rate (percent)		Females as a percentage of total		
	1960	1970	1980	1983 a/	1960-80	1980-83	1960	1970	1983 a/
Low-income economies	t 12	72	197	234	u 15.0	5.9	10	15	19
					o 13.0	3.3	12	13	21
Low-income semi-arid	t (.)	2	13	20	u .	14.9	.	12	-16
					o .	21.3	.	13	17
1 Mali	(.)	0.7	5.1	5.0 ^o	.	6.6	.	11	12 ^o
2 Burkina Faso	(.)	0.2	1.6	3.6	.	20.6	.	15	22
3 Niger	(.)	(.)	1.4	2.5	.	21.3	.	.	22
4 Senegal, The	(.)	(.)	(.)	(.)	.	.	.	.	.
5 Senegal	0.1	1.0	2.9	3.0	10.3	1.1	15	13	11
6 Chad	(.)	(.)	2.0 ^o	5.0 ^o	.	35.7	.	.	.
Low-income other	t 12	70	184	214	u 14.6	5.2	10	15	19
					o 12.4	4.7	12	16	21
7 Ethiopia	0.9	4.5	14.4	16.0	14.9	3.6	5	8	11
8 Eire	0.9	12.4	28.5	32.9	18.9	4.9	.	6	9
9 Malawi	(.)	1.1	2.2	2.4 ^o	.	4.4	.	23	28 ^o
10 Guinea-Bissau	(.)	(.)	(.)	(.)	.	.	.	.	.
11 Tanzania	(.)	2.0	5.0	6.2	.	7.4	.	17	17
12 Mauritius	(.)	0.5	1.9	2.1	.	3.4	.	6	29
13 Gambia	1.3	4.2	5.9	7.3 ^o	7.9	11.2	12	18	27 ^o
14 Togo	(.)	0.9	4.8	6.0	.	-3.9	.	12	19
15 Central African Rep.	(.)	0.2	1.7	2.4	.	12.2	.	13	10
16 Madagascar	0.7	5.7	22.6	32.6 ^o	19.0	20.1	23	32	.
17 Benin	(.)	0.3	4.0	6.3 ^o	.	25.5	.	7	16 ^o
18 Uganda	(.)	0.6	1.2	1.4	.	3.3	.	9	14
19 Kenya	1.0	7.8	13.0	22.2	13.7	19.5	16	15	19
20 Sierra Leone	0.3	1.2	1.8	2.0 ^o	9.4	3.6	11	16	25 ^o
21 Guinea	(.)	2.0	10.3	13.2 ^o	.	-7.0	.	8	23 ^o
22 Ghana	1.5	5.4	15.5	12.9	12.4	-3.9	11	14	22
23 Sudan	4.0	14.3	28.7	37.3 ^o	10.4	14.3	5	13	27 ^o
24 Senegal	1.4	5.0	13.6	11.8	12.0	-4.6	17	17	21
25 Mozambique	(.)	2.0	1.0	1.1	.	3.2	.	44	36
Middle-income oil importers	t 1	15	47	56	u 19.2	3.8	20	24	31
					o 12.7	0.0	22	22	30
26 Mauritania	(.)	(.)	0.6	0.6 ^o	.	(.)	.	.	10 ^o
27 Liberia	0.5	1.1	4.9	3.9	12.1	-10.6	21	22	26 ^o
28 Jordan	(.)	1.4	7.5	8.1 ^o	.	3.9	.	15	22 ^o
29 Lesotho	0.2	0.4	2.2	2.7	12.7	7.1	22	34	39
30 Cote d'Ivoire	0.3	4.4	19.6	17.9 ^o	23.2	-4.4	11	14	18 ^o
31 Lichobus	0.3	5.0	8.3	19.0	18.1	23.0	25	42	42
32 Swaziland	(.)	0.2	1.9	1.7	.	-3.6	.	39	41
33 Guyana	(.)	(.)	0.9	1.4	.	15.9	.	.	44
34 Mauritius	0.1	2.0	1.0	0.7	12.2	-11.2	.	5	30
Middle-income oil exporters	t 8	29	93	140	u 13.4	16.7	.	15	15
					o 15.6	10.8	.	15	15
35 Nigeria	7.0	22.0	69.7	120.0	12.2	14.5	7	15	.
36 Cameroon	(.)	2.7	11.5	13.3	.	5.0	.	8	14
37 Congo, People's Rep.	0.4	1.8	7.3	8.5 ^o	15.6	7.9	7	5	14 ^o
38 Oman	(.)	0.2	2.0	3.0 ^o	.	22.3	.	15	26 ^o
39 Angola	0.1	2.3	2.2	2.7 ^o	16.7	10.8	.	40	16 ^o
Sub-Saharan Africa	t 21	116	337	437	u 14.9	9.1	10	16	21
					o 13.2	3.3	12	13	22
Francophone countries	t 4	33	140	167	u 20.2	4.1	16	13	15
					o 18.9	6.0	14	11	15
Anglophone countries	t 16	60	169	208	u 12.4	13.7	9	17	27
					o 12.3	7.1	12	16	27
Other	t 1	10	21	23	u 15.7	3.6	6	23	13
					o 16.7	3.4	9	27	14

Notes: For data comparability and coverage, see the technical notes.
Totals may not sum due to rounding.

a. Figures with an asterisk are for 1982; those with a cross are estimates. See the technical notes.
Figures for Chad and Lichobus are for 1984.

Table 3. Distribution of tertiary enrollment by field of study, circa 1983

	Percent of all students enrolled in:											Percent of all females enrolled in:		
	Arts				Sciences						Other	Arts	Sciences	Other
	All Arts	Education	Social Sciences	Commerce & Business	All Sciences	Natural Sciences	Medical Sciences	Math & Engineering	Agri-culture					
Low-income economies	55	10	34	11	42	9	10	11	12	4	49	29	3	
Low-income semi-arid	43	12	39	9	33	8	8	10	8	(.)	75	22	(.)	
1 Mali	71	32	31	10	27	(.)	6	12	10	(.)	80	20	(.)	
2 Burkina Faso	72	./.	67	5	20	5	6	5	12	(.)	85	14	(.)	
3 Niger	.	.	.	.	.	.	.	.	.	.	.	.	.
4 Senegal, The	.	.	.	.	.	.	.	.	.	.	.	.	.
5 Somalia	.	.	.	.	.	.	.	.	.	.	.	.	.
6 Chad	.	.	.	.	.	.	.	.	.	.	.	.	.
Low-income other	34	9	34	11	43	10	10	11	12	4	60	34	3	
7 Ethiopia	33	13	39	9	37	9	8	10	7	(.)	75	24	(.)	
8 Tanzania	46	14	26	7	33	19	8	9	10	(.)	37	40	1	
9 Zaïre	.	.	.	.	.	.	.	.	.	.	.	.	.
10 Botswana	33	15	12	17	34	(.)	(.)	9	25	22	30	22	40	
11 Guinea-Bissau	.	.	.	.	.	.	.	.	.	.	.	.	.
12 Tanzania	65	40	16	9	35	1	12	14	7	(.)	75	24	(.)	
13 Burundi	69	11	39	19	29	5	8	11	5	2	.	.	.	
14 Uganda	65	22	29	17	35	10	7	12	6	(.)	85	17	(.)	
15 Togo	60	33	35	./.	32	10	8	6	4	(.)	82	18	(.)	
16 Central African Rep.	86	24	25	7	14	3	5	2	3	(.)	93	7	(.)	
17 Madagascar	85	2	66	7	45	10	17	12	1	(.)	.	.	.	
18 Benin	73	14	47	12	27	5	8	8	5	(.)	82	18	(.)	
19 Senegal	95	9	47	./.	43	9	13	11	10	(.)	70	30	(.)	
20 Kenya	29	12	9	8	69	5	6	17	20	23	.	.	.	
21 Sierra Leone	.	.	.	.	.	.	.	.	.	.	.	.	.
22 Guinea	19	7	./.	12	81	13	5	9	34	(.)	34	66	(.)	
23 Ghana	54	3	44	7	44	16	10	13	7	(.)	67	33	(.)	
24 Sudan	73	3	46	24	24	1	6	9	1	(.)	77	19	4	
25 Senegal	69	4	34	2	39	14	20	3	3	1	39	40	2	
26 Mozambique	33	14	39	(.)	47	3	10	21	13	(.)	39	41	(.)	
Middle-income all exporters	73	33	33	7	27	6	6	12	3	1	90	10	0	
27 Mauritania	60	27	26	16	28	7	3	13	2	1	85	13	(.)	
28 Mauritania	.	.	.	.	.	.	.	.	.	.	.	.	.
29 Liberia	.	.	.	.	.	.	.	.	.	.	.	.	.
30 Zambia	30	26	16	17	41	8	7	24	2	1	65	17	(.)	
31 Lesotho	.	.	.	.	.	.	.	.	.	.	.	.	.
32 Cote d'Ivoire	70	10	49	4	28	6	7	13	2	1	.	.	.	
33 Zimbabwe	39	70	20	(.)	11	2	4	2	2	(.)	96	6	(.)	
34 Swaziland	60	13	32	18	40	20	(.)	./.	20	(.)	70	22	(.)	
35 Botswana	89	20	30	23	11	11	(.)	(.)	(.)	(.)	95	4	(.)	
36 Mauritius	66	39	9	22	27	(.)	2	14	10	7	83	13	9	
Middle-income all exporters	62	15	40	7	39	13	11	11	4	(.)	.	.	.	
37 Mauritius	71	9	41	14	29	10	9	13	1	(.)	.	.	.	
38 Nigeria	59	14	38	8	41	14	12	11	4	(.)	.	.	.	
39 Cameroon	76	8	41	27	25	13	3	8	(.)	(.)	88	12	(.)	
40 Congo, People's Rep.	64	14	69	./.	14	10	5	./.	1	(.)	75	25	(.)	
41 Gabon	71	9	91	11	39	5	9	14	1	(.)	.	.	.	
42 Angola	36	1	18	16	64	7	20	31	6	(.)	.	.	.	
Sub-Saharan Africa	39	14	36	9	40	11	10	11	8	2	70	24	2	
Sub-Saharan Africa	63	14	39	12	34	7	7	11	6	(.)	79	20	(.)	
Francophone countries	61	10	43	8	30	10	11	9	6	(.)	66	25	(.)	
Francophone countries	71	11	47	11	29	9	8	9	4	(.)	81	19	(.)	
Francophone countries	60	17	33	10	37	9	9	12	7	3	80	17	3	
Anglophone countries	63	19	23	16	35	7	6	12	7	(.)	81	18	(.)	
Anglophone countries	46	12	26	8	55	17	9	13	14	(.)	59	40	(.)	
Other	46	14	26	7	47	7	10	21	13	(.)	.	.	.	

Notes: For data comparability and coverage see the technical notes. Percentages may not sum to 100 due to rounding.

Table 6. Total enrollment

Country	1960-80			1960-80			1960-80		
	Total	Average annual growth rate (percent)	1960-80	Total	Average annual growth rate (percent)	1960-80	Total	Average annual growth rate (percent)	1960-80
1 Haiti	70	2.9	3.4	70	2.9	3.4	70	2.9	3.4
2 Ethiopia	60	1.6	1.1	60	1.6	1.1	60	1.6	1.1
3 Niger	20	9.6	2.7	20	9.6	2.7	20	9.6	2.7
4 Guinea, The	9	2.2	1.1	9	2.2	1.1	9	2.2	1.1
5 Somalia	25	5.9	3.4	25	5.9	3.4	25	5.9	3.4
6 Chad	74	6.6	3.6	74	6.6	3.6	74	6.6	3.6
7 Ethiopia	230	12.4	6.2	230	12.4	6.2	230	12.4	6.2
8 Ivory	1606	6.4	3.3	1606	6.4	3.3	1606	6.4	3.3
9 Haiti	288	3.4	1.6	288	3.4	1.6	288	3.4	1.6
10 Guinea-Bissau	19	7.3	2.2	19	7.3	2.2	19	7.3	2.2
11 Tanzania	478	10.4	3.4	478	10.4	3.4	478	10.4	3.4
12 Burundi	96	3.7	1.8	96	3.7	1.8	96	3.7	1.8
13 Uganda	622	9.0	3.4	622	9.0	3.4	622	9.0	3.4
14 Togo	109	9.3	4.4	109	9.3	4.4	109	9.3	4.4
15 Central African Rep.	70	7.5	4.3	70	7.5	4.3	70	7.5	4.3
16 Madagascar	480	5.9	4.6	480	5.9	4.6	480	5.9	4.6
17 Senegal	94	8.0	3.6	94	8.0	3.6	94	8.0	3.6
18 Rwanda	270	5.0	2.8	270	5.0	2.8	270	5.0	2.8
19 Kenya	809	8.8	3.6	809	8.8	3.6	809	8.8	3.6
20 Sierra Leone	93	6.9	4.1	93	6.9	4.1	93	6.9	4.1
21 Guinea	106	6.8	1.4	106	6.8	1.4	106	6.8	1.4
22 Ghana	646	5.7	1.8	646	5.7	1.8	646	5.7	1.8
23 Sudan	192	8.1	4.3	192	8.1	4.3	192	8.1	4.3
24 Mongolia	141	6.7	7.6	141	6.7	7.6	141	6.7	7.6
25 Madagascar	431	4.1	3.1	431	4.1	3.1	431	4.1	3.1
26 Mauritania	12	11.9	9.5	12	11.9	9.5	12	11.9	9.5
27 Liberia	62	7.9	0.0	62	7.9	0.0	62	7.9	0.0
28 Zambia	293	7.1	4.6	293	7.1	4.6	293	7.1	4.6
29 Lesotho	139	3.4	6.7	139	3.4	6.7	139	3.4	6.7
30 Cote d'Ivoire	281	8.4	4.8	281	8.4	4.8	281	8.4	4.8
31 Indonesia	513	4.8	18.1	513	4.8	18.1	513	4.8	18.1
32 Swaziland	36	6.9	5.2	36	6.9	5.2	36	6.9	5.2
33 Botswana	37	8.6	5.1	37	8.6	5.1	37	8.6	5.1
34 Mauritius	136	2.2	1.1	136	2.2	1.1	136	2.2	1.1
35 Maldives	20113	8.2	2.9	20113	8.2	2.9	20113	8.2	2.9
36 Guyana	3894	16.21	8.7	3894	16.21	8.7	3894	16.21	8.7
37 Congo, People's Rep.	122	6.1	4.6	122	6.1	4.6	122	6.1	4.6
38 Gabon	69	10.7	3.9	69	10.7	3.9	69	10.7	3.9
39 Angola	117	13.6	6.2	117	13.6	6.2	117	13.6	6.2
40-42	12467	23604	33381	12467	23604	33381	12467	23604	33381
43-45	3870	5779	20113	3870	5779	20113	3870	5779	20113
46-48	4134	15177	17840	4134	15177	17840	4134	15177	17840
49-51	7491	34488	38999	7491	34488	38999	7491	34488	38999
52-54	843	1922	3886	843	1922	3886	843	1922	3886

a. See tables 1, 2 and 4 for years of data.

Notes for data comparability and coverage, see the technical notes.

Table 7. Primary enrollment ratios

Country	Male				Female			
	1960	1970	1980	1983 a/	1960	1970	1980	1983 a/
1 Mali	22	25	23	23	30	30	32	30
2 Burkina Faso	9	13	21	27	13	26	34	34
3 Niger	6	14	27	25	14	26	34	34
4 Guinea, The	16	24	52	40	20	34	69	65
5 Senegal	7	11	30	30	28	28	28	28
6 Chad	17	35	36+	30	29	52	52+	55
7 Ethiopia	7	16	35	30	23	46	66	66
8 Togo	34	69	90	110	46	104	103	103
9 Mali	38	61	90	110	50	110	104	104
10 Guinea-Bissau	24	39	67	62	35	57	87	87
11 Tanzania	24	34	93	87	33	41	100	91
12 Rwanda	21	30	29	42	33	42	42	42
13 Uganda	47	58	58	57+	64	70	70	70
14 Togo	44	71	123	102	64	90	152	124
15 Central African Rep.	30	64	72	77	50	68	93	102
16 Madagascar	36	90	101	104+	63	99	111	110+
17 Benin	26	36	64	67+	38	51	89	92+
18 Rwanda	49	60	64	62	69	76	67	64
19 Kenya	47	58	104	104	64	67	109	104
20 Sierra Leone	20	34	45	34	40	55	64	64
21 Guinea	20	33	35	30	48	47	49	49
22 Ghana	46	64	73	79	60	73	81	89
23 Sudan	20	38	50	49	29	47	59	59
24 Senegal	27	41	46	53	37	47	53	63
25 Mauritania	51	47	73	79	64	62	87	71
26 Mauritania	6	14	34	37+	11	20	44	44+
27 Liberia	36	56	76	79	52	75	85	85
28 Zambia	51	90	98	100	61	99	103	103
29 Lesotho	42	87	102	110+	73	71	88	94+
30 Cote d'Ivoire	43	59	73	77	59	71	92	92
31 Zimbabwe	74	88	131	131	81	81	136	136
32 Swaziland	57	87	106	111	59	81	107	114
33 Botswana	39	65	91	96	36	63	82	89
34 Mauritius	94	94	108	112	97	94	109	112
Middle-income oil exporters	42	46	101	94	58	56	115	131
35 Nigeria	42	54	89	98	46	113	113	113
36 Cameroon	57	89	104	108	77	103	114	117
37 Congo, People's Rep.	81	130	160	163+	108	147	166	169+
38 Gabon	54	83	115	110+	67	89	117	120+
39 Angola	17	75	124	134+	23	90	132	140+
Sub-Saharan Africa	36	48	76	73	49	59	87	80
40 Sub-Saharan Africa	36	48	76	73	49	59	87	80
41 Madagascar	36	48	76	73	49	59	87	80
42 Madagascar	36	48	76	73	49	59	87	80
43 Madagascar	36	48	76	73	49	59	87	80
44 Madagascar	36	48	76	73	49	59	87	80
45 Madagascar	36	48	76	73	49	59	87	80
46 Madagascar	36	48	76	73	49	59	87	80
47 Madagascar	36	48	76	73	49	59	87	80
48 Madagascar	36	48	76	73	49	59	87	80
49 Madagascar	36	48	76	73	49	59	87	80
50 Madagascar	36	48	76	73	49	59	87	80
51 Madagascar	36	48	76	73	49	59	87	80
52 Madagascar	36	48	76	73	49	59	87	80
53 Madagascar	36	48	76	73	49	59	87	80
54 Madagascar	36	48	76	73	49	59	87	80
55 Madagascar	36	48	76	73	49	59	87	80
56 Madagascar	36	48	76	73	49	59	87	80
57 Madagascar	36	48	76	73	49	59	87	80
58 Madagascar	36	48	76	73	49	59	87	80
59 Madagascar	36	48	76	73	49	59	87	80
60 Madagascar	36	48	76	73	49	59	87	80
61 Madagascar	36	48	76	73	49	59	87	80
62 Madagascar	36	48	76	73	49	59	87	80
63 Madagascar	36	48	76	73	49	59	87	80
64 Madagascar	36	48	76	73	49	59	87	80
65 Madagascar	36	48	76	73	49	59	87	80
66 Madagascar	36	48	76	73	49	59	87	80
67 Madagascar	36	48	76	73	49	59	87	80
68 Madagascar	36	48	76	73	49	59	87	80
69 Madagascar	36	48	76	73	49	59	87	80
70 Madagascar	36	48	76	73	49	59	87	80
71 Madagascar	36	48	76	73	49	59	87	80
72 Madagascar	36	48	76	73	49	59	87	80
73 Madagascar	36	48	76	73	49	59	87	80
74 Madagascar	36	48	76	73	49	59	87	80
75 Madagascar	36	48	76	73	49	59	87	80
76 Madagascar	36	48	76	73	49	59	87	80
77 Madagascar	36	48	76	73	49	59	87	80
78 Madagascar	36	48	76	73	49	59	87	80
79 Madagascar	36	48	76	73	49	59	87	80
80 Madagascar	36	48	76	73	49	59	87	80
81 Madagascar	36	48	76	73	49	59	87	80
82 Madagascar	36	48	76	73	49	59	87	80
83 Madagascar	36	48	76	73	49	59	87	80
84 Madagascar	36	48	76	73	49	59	87	80
85 Madagascar	36	48	76	73	49	59	87	80
86 Madagascar	36	48	76	73	49	59	87	80
87 Madagascar	36	48	76	73	49	59	87	80
88 Madagascar	36	48	76	73	49	59	87	80
89 Madagascar	36	48	76	73	49	59	87	80
90 Madagascar	36	48	76	73	49	59	87	80
91 Madagascar	36	48	76	73	49	59	87	80
92 Madagascar	36	48	76	73	49	59	87	80
93 Madagascar	36	48	76	73	49	59	87	80
94 Madagascar	36	48	76	73	49	59	87	80
95 Madagascar	36	48	76	73	49	59	87	80
96 Madagascar	36	48	76	73	49	59	87	80
97 Madagascar	36	48	76	73	49	59	87	80
98 Madagascar	36	48	76	73	49	59	87	80
99 Madagascar	36	48	76	73	49	59	87	80
100 Madagascar	36	48	76	73	49	59	87	80

Number enrolled as a percentage of age group

Total Male Female

1960 1970 1980 1983 a/ 1960 1970 1980 1983 a/ 1960 1970 1980 1983 a/

Low-income economies Low-income non-oil High

Low-income other

Other

Figures with an asterisk are 1982; those with a cross are estimates. See the technical notes.

Figures for Chad, Guinea, Nigeria and Liberia are for 1984.

Table B. Secondary enrollment ratios

	Number enrolled as a percentage of age group																
	Total							Male							Female		
	1960	1970	1980	1983 ^{a/}	1960	1970	1980	1983 ^{a/}	1960	1970	1980	1983 ^{a/}	1960	1970	1980	1983 ^{a/}	
Latin American region	0	2	5	11	12	3	0	19	17	1	3	7	0				
Latin America east-ward	0	1	2	6	7	1	4	0	9	10	0.2	1	3	4			
1 Haiti	1	5	7	7	7	1	8	11	10	10	2	2	4	4			
2 Barbados Free	1	1	3	4	4	1	2	4	5	5	.3	1	2	3			
3 Niger	.3	1	5	6	6	1	2	7	9	9	.1	1	3	3			
4 Ecuador, Tho	4	4	7	13	19	6	12	19	27	27	2	4	8	12			
5 Ecuador	1	3	11	14	14	2	5	16	19	19	.2	1	4	6	10		
6 Chad	.4	2	4	6	6	1	4	6	11	11	.1	.3	1	2			
Less- income other	0	3	9	19	19	5	12	21	29	29	2	5	10	13			
7 Ethiopia	1	4	9	11	11	2	6	11	14	14	.3	2	7	8			
8 Zaire	2	9	34	52	52	4	13	40	75	75	1	4	20	30			
9 Bahrain	1	2	4	4	4	2	3	6	6	6	.4	1	2	2			
10 Balance-Oceania	3	8	6	11	11	3	11	10	19	19	2	2	2	4			
11 Tanzania	2	3	3	3	3	2	4	4	4	4	1	2	2	2			
12 Bermuda	1	2	3	3	4	1	3	5	5	5	1	1	1	2	3		
13 Guyana	1	6	7	8	8	5	9	11	10	10	1	3	4	4	34		
14 Togo	2	7	34	24	24	4	11	52	36	36	1	3	17	12			
15 Central African Rep.	1	4	14	16	16	2	7	21	24	24	.3	2	7	8			
16 Madagascar	4	12	14	15	15	5	14	14	17	17	3	9	13	14			
17 Senegal	2	3	16	20	20	2	6	29	32	32	1	3	9	9	12		
18 Swazila	2	2	2	2	2	3	3	3	3	3	1	1	1	1	1		
19 Kenya	2	9	18	19	19	3	12	21	23	23	2	5	19	16			
20 Sierra Leone	2	6	14	15	15	3	12	19	19	19	1	5	9	9			
21 Guinea	2	13	16	15	15	4	21	23	21	21	1	1	5	9			
22 Guinea	19	42	37	39	39	20	52	46	40	40	10	31	20	20			
23 Sudan	3	7	16	19	19	5	10	20	22	22	1	4	4	12	16		
24 Senegal	3	10	11	12	12	4	14	15	17	17	2	2	4	4	4		
25 Mozambique	2	5	5	6	6	3	6	8	8	8	2	2	4	4	4		
Ratio-income oil exporters	0	4	10	17	25	5	13	21	31	31	3	7	12	19			
26 Mauritania	1	2	10	12	12	1	4	16	19	19	.1	.4	4	4	6		
27 Liberia	2	10	23	21	21	4	15	33	30	30	1	4	13	12			
28 Zambia	2	13	17	17	17	2	17	22	22	22	1	8	12	12			
29 Lesotho	3	7	17	19	19	3	7	14	14	14	3	7	20	23			
30 Cote d'Ivoire	2	2	9	19	20	3	13	26	27	27	1	4	4	12	11		
31 Eritreia	4	7	8	9	9	7	9	8	4	4	4	6	6	4	31		
32 Swaziland	5	18	39	43	43	5	21	40	44	44	4	16	38	42			
33 Botswana	1	7	19	21	21	2	9	18	19	19	1	6	21	23			
34 Mauritius	22	30	40	51	51	39	53	49	53	53	14	23	47	49			
Ratio-income oil importers	0	3	9	20	23	4	7	23	27	27	1	5	14	10			
35 Nigeria	3	4	19	23	23	4	4	23	27	27	1	5	14	17			
36 Cameroon	2	7	19	21	21	4	11	24	27	27	1	4	13	16			
37 Congo, People's Rep.	4	20	83	87	87	6	28	93	104	104	2	12	70	70			
38 Sudan	3	8	21	23	23	4	12	23	28	28	1	5	17	18			
39 Angola	2	8	19	120	120	2	9	28	14	14	2	6	7	7			
Sub-Saharan Africa	0	3	7	16	20	4	10	21	24	24	1	4	11	13			
40 Sub-Saharan Africa	0	2	7	14	16	3	9	19	19	19	1	4	9	10			
Francophone countries	0	2	7	18	23	3	10	26	32	32	1	3	11	16			
41 Francophone countries	0	2	6	14	19	3	9	18	20	20	1	3	8	9			
42 Francophone countries	0	4	8	17	21	6	11	21	22	22	2	5	13	14			
43 Francophone countries	0	3	7	17	19	4	11	20	22	22	1	5	12	16			
44 Francophone countries	0	1	5	9	10	2	7	13	13	13	1	3	6	7			
45 Francophone countries	0	2	5	9	11	2	6	11	10	10	2	4	6	7			

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for 1981; those with a cross are estimates. See the technical notes. Figures for Chad, Niger, and Eritreia are 1981.

Table 9. Tertiary enrollment ratios

	Number enrolled as a percentage of age group												
	Total				Male				Female				
	1960	1970	1980	1983 a/	1960	1970	1980	1983 a/	1960	1970	1980	1983 a/	
Low-income economies	u	0.2	0.6	0.9	1.1	0.3	0.9	1.4	1.6	0.1	0.2	0.3	0.3
	a	0.2	0.5	0.6	0.9	0.3	0.7	1.0	1.5	0.1	0.1	0.2	0.3
Low-income semi-arid	u	.	0.3	0.4	0.7	.	0.3	0.6	1.3	.	.	0.1	0.2
	a	.	0.3	0.3	0.6	.	0.3	0.5	1.0	.	0.1	0.1	0.2
1 Mali	.	.	0.2	0.3	0.9*	.	0.3	0.5	1.8*	.	(.)	0.1	0.2*
2 Burkina Faso	.	.	(.)	0.3	0.6	.	0.1	0.3	0.9	.	(.)	0.1	0.3
3 Niger	.	.	.	0.3	0.5	.	.	0.5	0.8	.	.	0.1	0.2
4 Gambia, The
5 Somalia	.	.	0.4	0.6	0.6	.	0.7	1.2	1.0	.	0.1	0.1	0.1
6 Chad	.	.	.	0.5*	1.2*	.	.	1.0*	2.4*	.	.	(.)*	(.)*
Low-income other	u	0.2	0.6	1.0	1.1	0.3	1.0	1.5	1.6	0.1	0.2	0.4	0.4
	a	0.2	0.5	0.9	1.1	0.3	0.8	1.6	1.8	0.1	0.2	0.3	0.3
7 Ethiopia	.	.	0.2	0.4	0.5	.	0.4	0.8	1.0	.	(.)	0.2	0.1
8 Zaïre	0.1	0.7	1.2	1.2	0.1	1.3	2.0	2.1	(.)	0.1	0.2	0.2	
9 Malawi	.	0.3	0.4	0.4*	0.4*	.	0.5	0.7	0.7*	.	0.1	0.2	0.7*
10 Guinea-Bissau
11 Tanzania	.	0.2	0.3	0.4	.	0.3	0.5	0.6	.	0.1	0.1	0.1	
12 Burundi	.	0.2	0.6	0.6	.	0.3	0.9	0.8	.	(.)	0.3	0.3	
13 Uganda	0.2	0.5	0.5	0.6*	0.4	0.8	0.8	0.9*	0.1	0.2	0.2	0.3*	
14 Togo	.	0.5	2.2	1.7	.	0.9	3.8	2.9	.	0.1	0.6	0.5	
15 Central African Rep.	.	0.1	0.9	1.2	.	0.2	1.7	2.2	.	(.)	0.1	0.2	
16 Madagascar	0.2	1.0	3.1	3.5*	0.2	1.3	3.0	4.2*	0.1	0.6	1.7	2.6*	
17 Benin	.	0.1	1.3	2.0*	.	0.3	2.1	3.5*	.	(.)	0.5	0.7*	
18 Rwanda	.	0.2	0.3	0.3	.	0.4	0.5	0.5	.	(.)	0.1	0.1	
19 Kenya	0.1	0.8	0.9	0.9	0.2	1.3	1.3	1.5	(.)	0.2	0.4	0.3	
20 Sierra Leone	0.1	0.5	0.6	0.6*	0.2	0.8	1.0	1.0*	(.)	0.1	0.2	0.2*	
21 Guinea	.	0.6	4.4	3.0*	.	1.0	7.2	4.8*	.	0.1	1.7	1.3*	
22 Ghana	0.2	0.8	1.5	1.8	0.4	1.3	2.4	2.8	0.1	0.2	0.6	0.8	
23 Sudan	0.4	1.2	1.8	2.1*	0.7	2.0	2.3	3.1*	(.)	0.3	0.9	1.2*	
24 Senegal	0.5	1.5	2.8	2.2	0.8	2.4	4.5	3.6	0.2	0.5	1.0	0.9	
25 Mozambique	.	0.3	0.1	0.1	.	0.3	0.1	0.1	.	0.2	0.1	0.1	
Middle-income oil importers	u	0.2	0.9	1.9	2.1	0.3	1.4	2.8	2.9	0.1	0.4	1.1	1.2
	a	0.1	0.9	1.6	2.1	0.3	1.4	1.6	2.5	0.1	0.3	1.1	0.9
26 Mauritania	.	.	0.4	0.4*	.	.	0.7	0.8*	.	.	0.1	0.1*	
27 Liberia	0.5	0.9	2.9	2.1	0.8	1.5	4.3	3.2	0.2	0.4	1.6	1.1	
28 Zaire	.	0.4	1.6	1.6*	.	0.7	2.3	2.5*	.	0.1	0.7	0.7*	
29 Lesotho	0.2	0.4	1.8	2.2	0.3	0.6	1.6	1.9	0.1	0.3	2.0	2.5	
30 Cote d'Ivoire	0.1	0.9	2.9	2.4*	0.2	1.4	4.6	3.7*	(.)	0.3	1.1	0.9*	
31 Zimbabwe	0.1	1.2	1.3	2.6	0.2	1.4	1.6	3.1	0.1	1.0	1.1	2.2	
32 Swaziland	.	0.6	3.9	3.0	.	0.8	4.8	3.6	.	0.4	3.1	2.5	
33 Botswana	.	.	1.1	1.6	.	.	1.4	1.8	.	.	0.9	0.4	
34 Mauritius	0.1	2.6	1.1	0.6	0.3	5.1	1.4	0.8	(.)	0.2	0.7	0.4	
Middle-income oil exporters	u	.	0.5	1.9	2.0	.	0.8	2.3	2.6	.	0.1	0.4	0.4
	a	.	0.5	2.2	2.1	.	0.8	3.5	4.0	.	0.1	0.7	1.0
35 Nigeria	0.2	0.5	2.2	2.1	0.3	0.8	3.7	.	(.)	0.1	0.7	.	
36 Cameroon	.	0.5	1.5	1.6	.	1.0	2.6	2.9	.	0.1	0.4	0.4	
37 Congo, People's Rep.	0.4	1.7	3.6	6.0*	0.8	3.3	9.6	10.3*	0.1	0.2	1.6	1.6*	
38 Gabon	.	0.2	2.2	3.3*	.	0.4	3.5	5.0*	.	0.1	1.0	1.7*	
39 Angola	.	0.5	0.3	0.4*	.	0.6	0.5	0.6*	.	0.4	0.1	0.1*	
Sub-Saharan Africa	u	0.2	0.6	1.2	1.4	0.3	0.9	1.6	1.8	0.1	0.2	0.4	0.4
	a	0.2	0.5	1.1	1.2	0.3	0.8	1.6	2.0	0.1	0.2	0.3	0.4
Francophone countries	u	0.2	0.6	1.4	1.6	0.2	1.1	2.1	2.4	0.1	0.2	0.4	0.4
	a	0.2	0.5	1.3	1.4	0.2	0.9	2.1	2.7	0.1	0.1	0.4	0.4
Anglophone countries	u	0.2	0.6	1.3	1.5	0.4	1.0	1.6	1.9	0.1	0.2	0.5	0.6
	a	.	0.3	0.4	0.4	.	0.4	0.6	0.7	.	0.1	0.1	0.1
Other	u	.	0.4	0.4	0.5	.	0.5	0.7	0.8	.	0.2	0.1	0.1
	a	.	0.4	0.4	0.5	.	0.5	0.7	0.8	.	0.2	0.1	0.1

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for 1982; those with a cross are estimates. See the technical notes. Figures for Nigeria and Zimbabwe are 1984.

Table 10. Teachers and schools

		Teachers (thousands)				Number of primary schools (thousands)		Number of primary students per school	
		Primary		Secondary		1960	1983 a/	1960	1983
		1960	1983 a/	1960	1983 a/				
Low-income economies	t	153	657	29	140	41	80	141	246
Low-income semi-arid	t	5	35	1	12	2	7	120	201
1 Mali		1.4	7.9	0.3	4.5	0.4	1.30	162	225*
2 Burkina Faso		1.5	4.1	0.2	1.5	0.4	1.2	142	231
3 Niger		0.6	6.9	0.1	1.7	0.3	1.7	89	147
4 Gambia, The		0.2	2.4	0.1	0.8	0.1	0.2	70	303
5 Senegal		0.8	9.5	0.1	3.0	0.2	1.3	114	170
6 Chad		0.8	4.5	0.1	.	0.3	1.2	241	240
Low-income other	t	148	622	28	128	39	73	143	249
7 Ethiopia		6.8	46.7	2.1	13.2	1.1	7.6	264	329
8 Zaire		30.8	112.0	3.1	.	.	.	.	.
9 Malawi		7.0	14.5	0.2	1.2	3.2	2.40	69	353
10 Guinea-Bissau		0.5	3.3	0.1	0.50	.	.80	.	97*
11 Tanzania		10.1	83.3	1.1	4.2	3.3	10.00	130	355*
12 Burundi		.	6.1	.	1.5	1.3	0.9	71	335
13 Uganda		18.5	44.40	2.0	7.00	6.0	4.90	99	336*
14 Togo		1.6	10.2	0.2	4.4	0.6	2.3	172	199
15 Central African Rep.		1.2	4.2	0.1	1.00	0.4	0.9	169	324
16 Madagascar		6.4	.	1.5	.	2.6	.	173	.
17 Benin		2.2	11.30	0.2	.	0.6	2.70	149	159*
18 Rwanda		.	14.1	.	1.1	3.2	1.6	82	476
19 Kenya		10.6	117.7	1.6	20.4	5.2	12.0	150	360
20 Sierra Leone		2.4	10.2	0.5	3.7	0.6	1.4	144	249
21 Guinea		1.8	7.9	0.4	5.10	0.6	2.60	161	109*
22 Ghana		16.2	52.3	12.0	36.5	5.1	8.4	99	173
23 Sudan		0.4	47.8	2.2	20.2	2.4	6.00	143	235*
24 Senegal		3.0	12.9	.	4.9	.	2.2	.	243
25 Mozambique		4.4	20.8	0.7	3.5	3.2	5.9	130	197
Middle-income oil importers	t	35	143	3	35	7	10	139	314
26 Mauritania		0.6	2.40	0.0	0.90	0.2	0.60	57	179*
27 Liberia		1.9	7.0	0.3	1.7	0.6	1.7	98	139
28 Zambia		5.8	25.9	0.4	4.8	.	3.1	.	385
29 Lesotho		2.5	5.30	0.2	1.50	1.0	1.10	136	253*
30 Cote d'Ivoire		5.8	32.1	0.6	8.9	1.7	5.8	141	200
31 Zimbabwe		12.7	54.0	.	10.4	2.7	4.2	179	507
32 Swaziland		0.9	3.9	0.1	1.50	0.3	0.5	115	240
33 Botswana		1.2	6.4	0.1	1.40	0.2	0.5	182	397
34 Mauritius		3.1	6.0	1.1	3.6	0.3	0.3	375	496
Middle-income oil exporters	t	114	474	11	100	19	16	171	236
35 Nigeria		97.1	399.5	6.8	91.9	15.5	.	188	.
36 Cameroon		10.0	31.0	0.7	9.8	.	5.5	.	280
37 Congo, People's Rep.		2.2	7.30	0.3	4.90	0.6	1.40	193	302*
38 Gabon		1.3	3.00	0.2	1.70	0.5	0.90	114	184*
39 Angola		2.9	32.00	0.8	.	2.0	6.30	52	187*
Sub-Saharan Africa	t	301	1273	43	283	67	112	141	273
Francophone countries	t	79	279	8	52	16	33	149	220
Anglophone countries	t	207	992	31	211	47	57	130	330
Other	t	15	112	4	20	.	22	118	235
								122	187

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for years other than those specified. See the technical notes.

Table 11. Student-teacher ratios

	Student teacher ratios									
	Primary				Secondary				Tertiary	
	1970	1975	1980	1983 a/	1970	1975	1980	1983 a/	1970	1983 a/
Low-income economies	42	42	43	40	19	23	23	23	10	11
	43	41	42	39	21	21	22	23	9	8
Low-income semi-arid	44	46	40	39	18	18	21	21	8	8
	46	44	42	37	21	20	21	21	7	9
1 Mali	40	41	42	37	19	17	.	17	5	12 ^a
2 Burkina Faso	44	47	54	62	23	20	29	24	5	10
3 Niger	39	39	43	36	.	.	.	28	7 ^a	8 ^a
4 Gambia, The	27	26	24	25	20	19	16	18	.	.
5 Somalia	33	57	33	23	24	21	21	21	17	6 ^a
6 Chad	68	68	.	64	2.	.	.	.	12	.
Low-income other	42	42	43	41	19	24	23	23	10	11
	44	43	44	41	20	21	22	21	9	7
7 Ethiopia	49	44	64	54	28	33	44	44	9	11
8 Zaire	43	.	.	42	23	.	.	.	9	.
9 Malawi	43	61	65	58	16	18	21	19	8	8 ^a
10 Guinea-Bissau	45	34	23	23	18	10	10	19 ^a	.	.
11 Tanzania	41	54	42	42	18	20	.	20	5 ^a	4 ^a
12 Burundi	37	31	35	49	11	19	.	18	5	7 ^a
13 Uganda	34	34	34	36 ^a	23	21	.	21 ^a	9	11 ^a
14 Togo	58	60	55	45	25	39	.	23	10	11 ^a
15 Central African Rep.	64	67	60	69	22	.	62	58	.	6
16 Madagascar	65	61	55	.	20	.	.	.	18	46 ^a
17 Benin	41	53	48	38 ^a	23	31	.	.	9	7 ^a
18 Rwanda	60	50	59	54	13	16	12	14	6	4 ^a
19 Kenya	34	33	38	37	21	29	23	23	.	7 ^a
20 Sierra Leone	32	32	28	34	20	19	.	21	6 ^a	7 ^a
21 Guinea	44	40	36	36	23	.	.	19 ^a	.	10 ^a
22 Ghana	30	31	29	28	17	22	22	21	6	.
23 Sudan	47	37	34	34	17	21	20	23	12	4 ^a
24 Senegal	45	41	46	41	.	.	22	23	17	14 ^a
25 Mozambique	69	69	81	56	17	.	34	33	9	3 ^a
Middle-income oil importers	42	42	41	39	21	21	22	30	8	6
	40	40	41	36	21	21	21	24	6	9
26 Mauritania	24	35	41	49 ^a	22	27	28	31 ^a	.	.
27 Liberia	36	41	41	33	17	17	.	31	.	.
28 Zambia	47	40	49	46	.	.	21	24	7	10 ^a
29 Lesotho	46	53	48	52 ^a	22	22	.	19 ^a	7	.
30 Cote d'Ivoire	45	45	39	36	21	.	.	30	20	.
31 Zimbabwe	40	40	44	40	.	18	20	40	.	.
32 Swaziland	40	38	34	33	17	21	17	18 ^a	5	7 ^a
33 Botswana	36	33	32	31	15	17	18	16 ^a	5	10
34 Mauritius	32	26	20	23	25	30	26	22	4	3
Middle-income oil exporters	30	36	46	37	21	34	35	34	9	14
	46	48	49	44	21	33	36	33	11	12
35 Nigeria	34	34	.	36	21	.	.	37	8	15 ^a
36 Cameroon	40	51	52	50	29	33	33	30	12	.
37 Congo, People's Rep.	62	59	34	58 ^a	33	42	37	39 ^a	15	23 ^a
38 Gabon	46	48	45	44 ^a	19	22	19	19	.	5 ^a
39 Angola	44	32	40	37 ^a	15	.	38	.	9	8 ^a
Sub-Saharan Africa	41	40	43	39	20	24	26	30	9	12
	43	41	42	39	21	21	22	23	9	8
Francophone countries	47	51	49	44	22	29	31	27	12	13
	48	48	47	45	22	29	27	24	11	10
	36	37	38	37	19	22	22	30	8	13
Anglophone countries	36	36	34	33	19	21	21	21	7	7
	51	47	34	46	21	34	38	38	9	9
Other	45	44	40	37	18	21	34	28	9	7

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for years other than those specified. See the technical notes.

Table 12. Student flow and efficiency indicators

	Primary								Secondary						
	Repeaters as a percentage of total enrollment		Proportion of cohort reaching the final grade (cohort = 1000)				Cost per completer as a multiple of cost per completer if no drop-out or repetition		Repeaters as a percentage of total enrollment		Progression from last grade of primary to first grade of secondary general education				
			Total		Female						Total	Female			
	1970	1983 a/	1970	1983 b/	1970	1983 b/	1970	1983 b/	1970	1983 b/	1970	1983 b/			
Low-income economies	u	17	13					2.0	2.0	7	10	44	43	45	41
	e	21	15	615	498	536	530	1.8	1.6	10	16	29	36	31	39
Low-income semi-arid	u	23	21					1.8	2.1	20	22	29	33	30	40
	e	19	16	536	703	542	702	1.8	1.9	11	11	29	39	29	40
1 Mali		26	33*	462	400	.	.	1.8	2.3	28	39*	33	42	.	.
2 Burkina Faso		16	17	536	703	542	702	1.5	1.6	11	15	13	22	13	.
3 Niger		19	15*	602	793	.	.	1.9	1.4	8	7*	24	35	20	28
4 Gambia, The		13	13	956	915	865	898	1.2	1.3	.	3	42	44	37	48
5 Senegal		.	.	.	.	.	.	.	2.1	.	.	100	50	88	69
6 Chad		27	.	285	293	200	201	2.6	4.0	11	.	12	19	.	.
Low-income other	u	16	12					2.0	2.0	6	10	45	43	45	41
	e	22	15	660	489	569	509	1.8	1.6	10	16	29	36	31	39
7 Ethiopia		.	12*	.	498	.	509	.	1.9	.	.	57	93	49	91
8 Zaire		23	18	.	.	.	.	2.2	1.6	11	8	40	71	37	62
9 Malawi		.	15	322	321	207	.	2.0	2.8	.	.	15	7	.	.
10 Guinea-Bissau		.	30	.	147	.	164	2.4	4.3	.	16	39	68	.	61
11 Tanzania		2	1*	841	757	.	644	1.6	1.4	.	.	16	8	14	7
12 Burundi		22	14	354	943	356	863	1.8	1.3	5	8*	16	8	15	7
13 Uganda		.	10*	.	757	.	644	1.4	1.4	.	.	.	13	.	11
14 Togo		34	36	676	257	586	180	4.2	3.3	19	34	27	31	28	27
15 Central African Rep.		28	33*	401	468	362	265	2.5	2.3	10	23*	23	36	21	40
16 Madagascar		29	.	.	.	.	.	2.5	2.7	13	.	41	.	41	.
17 Benin		19	22*	627	557	569	551	1.5	1.7	12	21*	28	40	31	39
18 Rwanda		30	12	.	412	.	376	3.8	2.0	3	5	7	4	6	2
19 Kenya		5	13*	744	607	679	.	1.3	1.5	(.)	.	28	35	28	33
20 Sierra Leone		.	.	.	488	.	.	.	.	10	.	58	73	56	72
21 Guinea		.	29	.	408	.	298	1.8	1.3	.	38	82	69	79	64
22 Ghana		3	2*	716	744	632	688	1.2	1.1	3	2*	105	.	100	.
23 Sudan		2	(.)*	.	.	.	.	1.4	1.2	5	.	50	53	40	34
24 Senegal		20	15	660	835	.	782	1.4	1.3	11	16	29	29	27	31
25 Mozambique		28	29	.	212	.	152	.	3.8	.	24	.	40	.	39
Middle-income oil exporters	u	12	8					1.8	1.4	14	14	29	44	29	50
	e	13	13	771	812	639	639	1.7	1.4	11	12	30	45	33	47
26 Mauritania		15	17*	.	795	.	506	1.5	1.4	11	11*	18	39	.	20
27 Liberia		.	.	.	.	.	.	.	1.3	28	.	47	63	40	35
28 Zambia		2	1*	771	828	640	720	1.8	1.2	.	.	23	21	25	.
29 Lesotho		20	23*	405	375	490	458	2.7	1.7	.	.	44	45	39	41
30 Cote d'Ivoire		25	25	841	889	638	864	1.4	1.4	11	16	27	30	22	29
31 Zimbabwe		.	1	.	.	.	.	.	1.4	.	.	30	74	31	72
32 Swaziland		11	13	627	630	659	639	1.8	1.5	10	6	47	68	45	67
33 Botswana		(.)	6	809	904	.	.	1.5	1.1	.	.	30	31	28	30
34 Mauritius		.	.	.	.	.	.	.	.	.	12*	36	54	34	53
Middle-income oil exporters	u	28	32					.	.	12	25	30	40	30	38
	e	33	31	598	614	577	645	.	.	11	20	27	39	28	45
35 Nigeria		.	.	.	.	.	.	.	.	.	.	34	.	35	.
36 Cameroon		26	30*	598	670	577	645	.	.	11	17	17	26	15	23
37 Congo, People's Rep.		33	31*	720	676	691	688	1.6	1.7	17	37*	37	73	36	73
38 Ethen		33	32*	504	537	439	358	1.7	1.9	10	20*	19	27	20	.
39 Angola		.	36*	.	.	.	.	.	.	.	.	.	50	.	45
Sub-Saharan Africa	u	17	14					1.9	1.8	8	12	39	43	38	42
	e	20	16	627	667	577	599	1.8	1.5	11	16	30	40	31	41
Francophone countries	u	23	22					2.1	1.9	12	14	31	44	30	60
	e	26	23	598	614	556	535	1.8	1.7	11	16	26	31	22	29
Anglophone countries	u	4	6					1.6	1.5	3	3	43	34	43	37
	e	3	8	744	744	652	644	1.5	1.4	7	4	36	49	36	51
Other	u	29	22					2.4	2.9	.	24	61	63	52	59
	e	28	29	.	225	.	164	2.4	3.0	.	20	57	50	69	49

Notes for data comparability and coverage, see the technical notes.

Table 13. Percentage of students enrolled in private schools

	Primary				Secondary			
	1970	1975	1980	1983 a/	1970	1975	1980	1983 a/
Low-income economies	9.5	7.8	3.9	5.4	23.4	18.0	14.5	8.3
	7.4	6.4	3.3	1.9	24.2	19.4	10.2	9.3
Low-income semi-arid	8.5	5.7	4.1	4.5	17.2	17.5	20.1	24.3
	7.4	6.6	4.2	4.1	17.8	16.1	24.7	44.4
1 Mali	6.3	6.0	4.2	4.1	13.6	10.8	6.3	8.4
2 Burkina Faso	3.5	7.2	8.4	8.2	36.1	42.5	51.0	50.2
3 Niger	6.1	4.6	3.1	2.3	22.0	14.1	15.5	.
4 Gambia, The	31.4	16.4	15.1	14.4	.	45.6	33.8	44.4
5 Somalia	25.1	0.0	0.0	0.0	.	.	.	.
6 Chad	8.4	9.7	.	.	6.8	6.1	.	.
Low-income other	9.6	7.9	3.9	3.3	23.8	18.0	14.3	7.8
	7.8	6.4	2.8	0.4	36.3	20.8	6.7	8.4
7 Ethiopia	28.1	28.6	15.6	12.5	11.2	7.1	7.2	7.3
8 Zaïre	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9 Malawi	11.2	10.2	6.8	.	.	13.4	1.4	.
10 Guinea-Bissau	.	.	.	.	.	.	.	.
11 Tanzania	3.3	3.7	0.2	0.3	24.2	30.1	41.0	44.2
12 Burundi	93.9	92.6	4.3	11.0	36.3	21.6	6.2	7.4
13 Uganda	.	.	.	.	.	.	.	.
14 Togo	33.9	28.6	23.3	22.7	38.6	20.8	12.0	12.4
15 Central African Rep.	0.0	0.0	0.0	0.0	2.3	1.7	0.9	9.3
16 Madagascar	24.4	23.4	.	.	70.3	49.1	31.3	.
17 Benin	34.2	6.4	3.4	.0	55.9	17.9	4.1	0.0
18 Rwanda	.	.	.	0.4	.	21.2	37.0	31.3
19 Kenya	3.4	0.0	.	.	42.4	49.0	59.9	33.2
20 Sierra Leone	78.5	77.5	.	.	.	.	.	.
21 Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22 Ghana	3.1	.	2.8	.	.	.	.	.
23 Sudan	4.3	2.0	2.5	1.9	.	.	.	.
24 Senegal	12.4	12.3	11.1	9.5	.	30.0	30.1	31.2
25 Mozambique	0.0	0.0	0.0	0.0	37.5	.	0.0	0.0
Middle-income oil importers	49.2	46.4	38.6	57.2	32.9	34.8	34.7	53.6
	29.3	27.8	25.9	26.0	51.2	34.3	33.4	35.7
26 Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27 Liberia	34.3	34.6	33.5	29.6	51.2	38.2	44.2	35.7
28 Jamaica	27.4	24.4	0.6	.	.	.	.	.
29 Lesotho	100.0	100.0	98.4	98.5	.	88.9	89.9	.
30 Cote d'Ivoire	21.8	18.6	15.0	11.2	25.0	28.0	30.1	31.5
31 Zimbabwe	86.8	86.6	83.5	88.2	.	.	.	64.5
32 Swaziland	76.2	80.4	79.8	79.8	59.6	45.4	40.6	38.1
33 Botswana	5.2	5.4	4.7	5.8	59.0	30.3	27.6	32.1
34 Mauritius	29.3	27.8	25.9	22.3	.	.	.	.
Middle-income oil exporters	33.9	22.6	17.4	18.1	30.4	26.2	19.1	22.4
	37.7	21.5	18.2	17.4	19.6	16.5	22.0	22.8
35 Nigeria	37.7	.	.	.	.	.	.	.
36 Cameroon	33.9	42.9	36.3	34.7	65.8	56.8	47.0	46.3
37 Congo, People's Rep.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38 Gabon	49.4	45.1	39.0	36.9	39.1	32.9	43.9	45.3
39 Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Saharan Africa	21.9	15.2	11.5	14.6	25.3	21.0	17.1	14.9
	17.1	10.0	4.3	5.8	30.6	21.4	21.6	21.8
Francophone countries	16.5	13.7	9.4	8.1	24.8	17.6	11.8	6.9
	8.4	7.2	4.2	3.2	23.5	19.4	12.0	8.9
Anglophone countries	27.4	18.6	15.9	29.1	40.3	44.6	53.6	45.8
	29.3	24.4	11.0	22.3	51.2	41.8	40.8	38.1
Other	12.0	10.0	6.6	6.2	13.2	5.5	4.3	5.1
	12.6	0.0	0.0	0.0	11.2	3.6	0.0	0.0

Notes: For data comparability and coverage, see the technical notes.

a. Figures are for the latest available year. See the technical notes.

Table 14. Total public expenditure on education

	Public expenditures on education in constant 1983 \$ US (billions)				Average annual growth rate		Public expenditures on education as a percentage of:								
							Total government expenditures				GDP				
	1970	1975	1980 a/	1983 a/	1970-80	1980-83	1970	1975	1980 a/	1983 a/	1970	1975	1980 a/	1983 a/	
Low-income economies	t	.	.	.	0	2.1 6.7	-3.6 -3.0	17.0 17.6	17.2 17.0	16.1 18.0	14.6 15.3	4.1 3.8	4.1 3.5	4.0 3.7	3.2 3.3
Low-income semi-arid	t	.	.	.	0	9.4 9.0	-2.0 -4.5	11.0 10.8	15.3 15.6	10.7 19.0	17.6 22.0	1.5 2.0	2.0 3.2	3.1 3.2	2.9 3.6
1 Mali	.	.	44.5	36.7	.	.	-6.2	.	.	30.0	37.2	.	.	4.6	3.7
2 Burkina Faso	.	.	28.3	33.6	.	.	3.9	.	.	19.8	23.9	.	.	2.6	3.2
3 Niger	20.5	34.6	57.2	46.9	10.8	.	-6.4	17.7	10.7	22.9	21.7	2.0	3.0	4.3	3.6
4 Senegal, The	2.8	3.7	6.6	11.0 ^a	9.0	.	.	10.0	.	12.5	.	2.3	3.2	3.2	5.9 ^a
5 Somalia	11.7	27.0	22.6	20.7	6.8	.	-2.9	7.6	12.5 ^a	0.7	6.3	1.0	2.1	1.7	1.4
6 Chad	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Low-income other	t	.	.	.	0	1.0 3.9	-3.0 -2.0	17.2 17.7	17.3 17.0	15.0 10.1	14.3 15.3	4.2 3.9	4.2 3.5	4.1 3.8	3.2 3.1
7 Ethiopia	88.6	125.0	126.9	147.7	3.7	5.2	.	19.4	13.4	9.3	10.9	2.0	3.6	2.9	3.1
8 Zaire	289.6	.	263.5	.	-0.9	.	.	17.6	.	22.0	.	7.0	.	6.1	.
9 Malawi	30.1	23.0	38.4	32.0	2.5	-5.1	.	13.2	9.6	.	0.9	4.6	2.4	3.6	3.0
10 Guinea-Bissau	.	.	.	3.3	.	.	.	.	.	.	11.8	.	.	.	3.0
11 Tanzania	138.6	210.4	281.0 ^a	255.2	0.2	-2.4	.	16.0	17.0	14.3 ^a	15.3	4.3	5.4	5.9 ^a	5.0
12 Burundi	.	.	.	37.0 ^a	.	.	.	.	.	.	.	.	.	.	3.4 ^a
13 Uganda	328.3	214.4	46.7	106.1	-17.7	31.4	.	17.0	17.0	11.3	.	3.9	2.5	0.7	1.3
14 Togo	12.1	23.5	46.3	41.9	14.4	-3.2	.	19.0	15.2	19.4	20.0	2.2	3.5	5.6	5.9
15 Central African Rep.	.	29.3	.	.	.	.	.	.	20.1	.	.	.	4.9	.	.
16 Madagascar	.	93.9	110.2	65.5	.	-17.0	.	.	10.5	.	.	.	3.2	3.7	2.3
17 Benin	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18 Rwanda	19.2	25.0	36.4	48.3	6.6	9.9	.	26.6	23.3	21.6	24.0	2.3	3.5	2.7	3.1
19 Kenya	120.9	240.9	340.1	272.6	11.2	-7.0	.	17.6	19.4	10.1	15.3	5.0	6.3	6.9	4.0
20 Sierra Leone	26.5	32.4	38.9	36.6	3.9	-2.0	.	17.5	.	.	17.6	3.2	3.4	3.8	3.5
21 Guinea	.	.	.	70.5	.	.	.	.	.	.	12.7	.	.	.	4.0
22 Ghana	104.5	253.0	140.5	80.9	-2.7	-10.0	.	19.6	21.5	.	15.2	4.3	5.9	3.1	2.0
23 Sudan	159.1	221.7	303.7	.	6.8	.	.	12.6	14.0	.	.	3.9	4.6	4.6	.
24 Senegal	67.6	.	.	.	.	.	.	21.3	.	.	.	3.8	.	.	.
25 Mozambique	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Middle-income oil importers	t	547.4	.	.	0	0.0 10.0	3.5 0.4	14.7 14.0	15.1 14.4	17.6 16.0	19.6 17.6	4.2 3.4	5.1 3.7	6.7 6.3	7.3 5.5
26 Mauritania	19.5	.	.	.	.	.	.	21.9	.	.	.	3.3	.	.	.
27 Liberia	19.0	20.2	63.1	51.1	13.1	-7.7	.	9.5	11.6	24.3	13.2	2.5	2.4	6.3	5.3
28 Zaire	126.7	201.0	136.7	176.2 ^a	0.8	13.5	.	10.9	11.9	9.7	15.2 ^a	4.3	6.5	4.5	3.5 ^a
29 Lesotho	7.3	.	.	24.9	.	.	.	22.0	.	.	17.9	3.0	.	.	3.9
30 Cote d'Ivoire	205.1	327.0	330.0 ^a	544.7	11.3	0.3	.	19.3	19.0	29.0 ^a	20.2	5.4	6.3	8.4 ^a	9.1
31 Zimbabwe	128.2	170.2	329.1	420.8	9.9	9.2	.	.	.	13.7	17.6	3.4	3.6	6.6	7.6
32 Swaziland	14.7	19.9	27.6	32.2 ^a	6.5	.	.	17.3	16.9	10.0	.	4.3	3.7	4.5	4.7 ^a
33 Botswana	0.9	20.5	56.0	50.2	20.9	0.6	.	12.3	10.0	16.0	10.5	5.2	8.5	7.1	7.2
34 Mauritius	10.3	29.0	51.1	46.0	10.0	-3.4	.	11.5	9.6	11.6	10.3	3.1	3.6	5.3	4.3
Middle-income oil exporters	t	.	5468.2	.	0	5.9 5.0	-14.2 -7.0	19.4 19.6	16.7 10.2	15.9 20.3	9.0 13.7	3.0 3.5	5.3 4.7	6.0 4.0	6.3 4.5
35 Nigeria	.	3071.5	4680.0 ^a	2693.5 ^a	.	.	-16.0	.	16.5	15.7 ^a	9.3 ^a	.	5.5	6.4 ^a	4.3 ^a
36 Cameroon	109.7	147.1	102.4	234.4	3.2	0.7	.	19.6	21.3	20.3	17.2	3.5	3.9	3.3	3.6
37 Congo, People's Rep.	44.0	69.1	92.6	102.0 ^a	7.5	.	.	23.7	10.2	23.6	19.2 ^a	5.9	0.1	6.9	6.0 ^a
38 Gabon	66.5	69.3	81.9	.	5.0	.	.	16.2	.	.	.	3.1	2.1	2.0	.
39 Angola	.	.	430.0 ^a	372.2	.	.	-7.0	.	.	.	10.1	.	.	5.0 ^a	4.7
Sub-Saharan Africa	t	.	.	.	0	4.4 6.0	-9.2 -2.9	16.7 17.6	16.6 17.4	16.2 10.5	11.9 15.3	4.1 3.5	4.9 3.7	5.5 4.5	4.3 3.9
Francophone countries	t	.	.	.	0	3.7 7.1	0.3 -1.5	19.3 19.5	10.7 10.9	20.2 22.0	23.7 21.7	4.6 3.4	4.3 3.0	5.1 4.3	5.0 3.6
Anglophone countries	t	.	.	.	0	3.7 7.5	-11.0 -2.9	14.6 14.6	16.7 16.7	14.3 14.3	15.3 15.3	4.0 3.9	3.1 3.7	3.7 4.6	4.3 4.6
Other	t	.	.	.	0	4.1 3.2	-2.3 -2.9	13.5 13.5	13.0 13.0	9.0 9.0	10.5 10.5	2.3 1.9	3.2 2.0	2.6 2.3	3.0 3.0

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for years other than those specified. See the technical notes.

Table 19. Distribution of total public expenditures on education by component (recurrent or capital)

	Recurrent expenditure						Capital expenditure					
	As a % of total public expenditure on education				Average annual growth rate		As a % of total public expenditure on education				Average annual growth rate	
	1970	1975	1980 a/	1983 a/	1970-80	1980-83	1970	1975	1980 a/	1983 a/	1970-80	1980-83
Low-income economies	83.6	87.7	88.2	90.1	2.6	-1.2	14.4	12.3	11.8	9.9	0.1	-11.3
	89.0	89.6	91.1	95.7	5.0	-0.8	11.0	10.4	8.9	4.3	5.3	-20.3
Low-income semi-arid	93.9	84.9	77.6	94.1	4.7	4.5	4.1	15.1	22.4	5.9	.	-37.1
	94.4	83.7	91.1	96.7	5.0	1.7	5.6	16.3	8.9	3.3	.	-28.1
1 Mali	.	.	98.8	98.9	5.0	-6.2	.	.	1.2	1.1	.	-8.2
2 Burkina Faso	.	.	93.0	99.2	4.4	8.2	.	.	7.0	0.8	.	-48.0
3 Niger	93.8	87.0	47.0	96.7	3.4	19.1	6.2	13.0	93.0	3.3	37.3	-62.9
4 Gambia, The	94.4	78.1	88.1	68.6 ^a	8.2	.	5.6	21.9	11.9	31.4 ^a	17.5	.
5 Somalia	100.0	83.7	91.1	85.9	5.8	-4.8	(.)	16.3	8.9	14.1	.	13.5
6 Chad	.	.	.	.	.	.	.	.	.	.	.	.
Low-income other	85.3	87.9	89.1	89.6	2.4	-1.8	14.7	12.1	10.9	10.4	-1.3	-7.3
	88.4	91.0	90.7	95.3	4.8	-0.8	11.6	9.0	9.3	4.7	2.2	-20.3
7 Ethiopia	49.5	83.5	89.3	77.3 ^a	10.0	12.3	50.5	16.9	10.7	22.7 ^a	-11.3	76.4
8 Zaïre	88.1	.	96.0	.	(.)	.	11.9	.	4.0	.	-11.1	.
9 Haiti	73.7	91.9	75.6	90.1	2.7	0.7	26.3	8.1	24.4	9.9	1.7	-29.7
10 Guinea-Bissau	.	.	.	99.0	21.8	-5.2	.	.	.	1.0	.	.
11 Tanzania	82.8	80.4	82.3 ^a	87.2	8.1	-1.0	17.2	19.6	17.7 ^a	12.8	8.5	-10.0
12 Burundi	.	.	.	89.1 ^a	6.0	.	.	.	.	10.9 ^a	.	.
13 Uganda	82.4	93.0	88.3	76.0	-17.1	25.0	17.6	7.0	11.7	24.0	-21.0	67.1
14 Togo	88.8	96.3	96.4	97.4	15.3	-2.9	11.2	3.7	3.6	2.6	2.2	-13.8
15 Central African Rep.	.	86.9	.	.	1.5	-0.4	.	13.1	.	.	.	.
16 Madagascar	.	95.2	93.5	98.0	0.9	-16.5	.	4.8	6.5	2.0	.	-44.6
17 Benin	.	.	.	.	5.9	.	.	.	.	.	.	.
18 Rwanda	98.8	99.9	84.7	99.3	5.0	15.9	1.2	0.1	15.3	0.7	37.5	-60.2
19 Kenya	93.9	93.4	92.1	96.0	10.9	-6.5	6.1	4.6	7.9	4.0	14.1	-26.7
20 Sierra Leone	89.0	90.2	93.3	95.3	4.6	-2.0	11.0	9.8	4.7	4.7	-4.6	-1.9
21 Guinea	.	.	.	97.4	4.6	-0.6	.	.	.	2.6	.	.
22 Ghana	87.8	77.9	73.2	89.2	-4.3	-11.1	12.2	22.1	26.8	10.8	5.3	-38.6
23 Sudan	93.4	89.6	92.2	.	6.6	.	6.6	10.4	7.8	.	8.5	.
24 Senegal	97.8	.	.	.	3.5	(.)	2.2	.	.	.	.	.
25 Mozambique	.	.	.	.	.	.	.	.	.	.	.	.
Middle-income oil importers	87.3	83.1	86.0	93.3	8.4	6.6	12.7	16.9	14.0	6.7	9.2	-17.5
	88.5	81.4	85.9	95.6	10.0	4.3	11.5	18.6	14.1	4.4	11.8	-27.4
26 Mauritania	95.0	.	.	.	6.4	16.7	5.0	.	.	.	.	.
27 Liberia	.	.	83.9	95.7	.	-4.6	.	.	14.1	4.3	.	-37.8
28 Zambia	79.2	76.9	95.1	99.9 ^a	2.6	16.4	20.8	23.1	4.9	0.1 ^a	-12.7	-85.4
29 Lesotho	91.3	.	.	93.7	.	.	8.7	.	.	6.3	.	.
30 Cote d'Ivoire	85.6	84.7	77.8 ^a	89.5	10.1	3.9	14.4	15.3	22.2 ^a	10.5	16.0	-16.9
31 Zimbabwe	94.1	91.8	97.4	95.6	10.0	8.5	3.9	8.2	2.6	4.4	5.4	30.3
32 Swaziland	85.7	78.1	80.0 ^a	80.0 ^a	5.8	.	14.3	21.9	20.0 ^a	20.0 ^a	10.2	.
33 Botswana	84.6	54.5	75.8	83.9	19.5	4.3	15.4	45.5	24.2	16.1	26.4	-11.9
34 Mauritius	92.0	87.4	89.9	98.8	10.5	-0.3	8.0	12.6	10.1	1.2	13.5	-52.7
Middle-income oil exporters	93.9	84.0	82.9	88.9	15.5	.	6.1	46.0	17.1	11.1	17.8	.
	93.6	83.1	82.1	91.2	5.6	.	4.4	16.9	17.9	8.8	14.8	.
35 Nigeria	.	51.0	82.9 ^a	88.3 ^a	15.3	-15.0	.	49.0	17.1 ^a	11.7 ^a	.	-26.8
36 Cameroon	92.2	83.5	81.3	79.1	3.9	7.7	7.8	16.5	18.7	20.9	14.8	12.8
37 Congo, People's Rep.	96.6	82.6	93.8	94.0 ^a	7.2	.	3.4	17.4	6.2	6.0 ^a	14.1	.
38 Gabon	95.6	85.0	72.3	.	2.9	.	4.4	15.0	27.7	.	27.1	.
39 Angola	.	.	.	97.9 ^a	.	.	.	.	.	2.1 ^a	.	.
Sub-Saharan Africa	86.7	67.1	84.6	90.1	9.2	-7.0	13.3	32.9	15.4	9.9	4.1	-20.7
	91.7	85.0	88.8	93.3	9.8	-0.3	8.3	15.0	11.2	4.7	9.3	-21.8
Francophone countries	90.2	86.4	83.9	90.3	4.4	3.3	9.8	13.6	16.1	9.7	11.3	-17.3
	94.4	86.9	93.0	97.4	4.6	2.0	5.6	13.1	7.0	2.6	15.8	-30.7
Anglophone countries	88.4	83.9	88.1	91.9	7.4	-0.6	11.6	16.1	11.9	8.1	8.9	-26.7
	93.4	83.6	89.6	91.9	9.4	6.0	44.6	16.4	10.4	8.1	-11.3	42.6
Other	74.8	83.6	90.2	91.9	10.0	-4.8	25.3	16.4	9.8	8.1	-11.3	45.0

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for years other than those specified. See the technical notes.

Table 16. Public recurrent expenditures on education by level of education

Country	Percentage of public recurrent expenditures allocated to:				Non-specified %
	Primary		Secondary		
	1970	1975 1980 or 1983 or	1970	1975 1980 or 1983 or	
1 Haiti	69	60	33	20	9
2 Bolivia Faso	43	43	32	17	28
3 Niger	41	36	31	17	13
4 Senegal, The	43	44	36	26	26
5 Senegal	43	44	36	26	26
6 Chad	43	42	42	27	0
7 Ethiopia	39	42	44	29	9
8 Zaire	47	47	35	23	9
9 Malawi	45	45	39	23	19
10 Guinea-Bissau	45	45	39	23	19
11 Tanzania	37	37	45	22	17
12 Burkina Faso	45	45	39	23	19
13 Uganda	41	41	30	20	28
14 Togo	48	48	30	26	26
15 Central African Rep.	57	57	34	23	12
16 Madagascar	43	43	39	23	19
17 Benin	44	44	39	23	19
18 Rwanda	47	47	34	23	19
19 Kenya	49	49	34	23	19
20 Sierra Leone	40	40	31	21	12
21 Guinea	25	25	31	17	15
22 Ghana	23	23	32	17	10
23 Senegal	48	48	31	21	20
24 Senegal	47	47	34	23	19
25 Rwanda	49	49	34	23	19
Middle-income all importers	45	45	34	23	19
26 Mauritius	45	45	34	23	19
27 Liberia	18	18	16	17	23
28 Lanka	45	45	34	23	19
29 Lesotho	44	44	34	23	19
30 Cote d'Ivoire	27	27	39	23	19
31 Zimbabwe	49	49	34	23	19
32 Senegal	40	40	34	23	19
33 Botswana	58	58	43	29	19
34 Mauritius	49	49	34	23	19
Middle-income all exporters	44	44	34	23	19
35 Nigeria	40	40	34	23	19
36 Cameroon	41	41	34	23	19
37 Congo, People's Rep.	49	49	34	23	19
38 Gabon	49	49	34	23	19
39 Angola	49	49	34	23	19
Sub-Saharan Africa	43	43	34	23	19
40	43	43	34	23	19
41	43	43	34	23	19
42	43	43	34	23	19
43	43	43	34	23	19
44	43	43	34	23	19
45	43	43	34	23	19
46	43	43	34	23	19
47	43	43	34	23	19
48	43	43	34	23	19
49	43	43	34	23	19
50	43	43	34	23	19
51	43	43	34	23	19
52	43	43	34	23	19
53	43	43	34	23	19
54	43	43	34	23	19
55	43	43	34	23	19
56	43	43	34	23	19
57	43	43	34	23	19
58	43	43	34	23	19
59	43	43	34	23	19
60	43	43	34	23	19
Other	43	43	34	23	19

Notes: For data comparability and coverage, see the technical notes. Figures with ex asterisk are for years other than those specified. See the technical notes.

Table 17. Public recurrent expenditure per primary pupil

	Expenditure in constant 1983 ^a				Expenditure as a percentage of GNP per capita				Expenditure as a percentage in current ^b
	1970	1975	1980 a/	1983 a/	1970	1975	1980 a/	1983 a/	1983 b/
Low-income economies	u 53	45	36	32	.	.	.	.	2.3
	e 61	52	41	40	24	23	18	18	0.7
Low-income semi-arid	u 103	90	51	49	.	.	.	.	2.4
	e 109	62	53	48	49	31	23	25	0.9
1 Mali	86	50	39	41	72	40	41	25	1.3
2 Burkina Faso	.	39	42	38	.	39	24	21	0.4
3 Niger	131	.	.	65	53	.	.	27	7.0
4 Senegal, The	67	79	67	80 ^a	26	24	21	27 ^a	.
5 Somalia	147	66	47	48	45	20	17	19	(.)
6 Chad	.	.	.	.	.	.	.	.	.
Low-income other	u 50	44	36	31	.	.	.	.	2.3
	e 46	43	36	30	18	22	16	12	0.7
7 Ethiopia	37	37	22	26 ^a	33	35	19	23 ^a	0.6
8 Zaire	.	33	29	.	.	18	18	.	.
9 Malawi	26	15	14	13	18	8	8	6	(.)
10 Guinea-Bissau	.	.	39	29	.	.	33	20	(.)
11 Tanzania	56	40	36 ^a	30	24	16	12 ^a	12	0.7
12 Burundi	.	61	.	63 ^a	.	29	.	26 ^a	0.8
13 Uganda	.	66	8	8	.	23	4	4	(.)
14 Togo	32	.	26	23	12	.	8	8	(.)
15 Central African Rep.	.	66	52	44	.	22	19	16	.
16 Madagascar	52	34	50	25	13	9	14	8	(.)
17 Benin	83	61	54	.	36	25	20	.	.
18 Rwanda	30	43	29	47	13	26	11	17	2.0
19 Kenya	39	52	39	39	18	19	13	12	1.0
20 Sierra Leone	.	.	.	40	.	.	.	12	.
21 Guinea	.	.	69	75	.	.	20	25	.
22 Ghana	66	41	21	16	13	10	6	5	1.6
23 Sudan	72	.	92	.	24	.	26	.	.
24 Senegal	.	120	98	101	.	30	27	23	3.6
25 Mozambique	.	.	.	.	.	.	.	.	.
Middle-income oil importers	u 74	101	129	121	.	.	.	.	1.3
	e 71	85	132	106	11	10	15	13	0.6
26 Mauritania	.	196	134	143	.	45	30	33	2.9
27 Liberia	.	.	43	63	.	.	8	13	0.7
28 Togo	64	80	57	78 ^a	9	13	10	15 ^a	2.7
29 Lesotho	22	.	.	31	10	.	.	7	(.)
30 Cote d'Ivoire	100	132	171 ^a	189	13	20	21 ^a	27	2.8
31 Zimbabwe	89	89	173	122	11	12	24	17	(.)
32 Swaziland	.	56	81	100 ^a	.	6	8 ^a	11	0.6
33 Botswana	50	62	130	106	18	13	14	12	(.)
34 Mauritius	77	85	157	151	11	9	16	13	0.1
Middle-income oil exporters	u .	.	.	.	.	.	.	.	.
	e .	.	.	.	.	.	.	.	.
35 Nigeria	92	60	48 ^a	55 ^a	14	8	5 ^a	7 ^a	.
36 Cameroon	.	.	.	49 ^a	.	.	.	6 ^a	.
37 Congo, People's Rep.	87	79	79	.	14	10	9	.	0.1
38 Gabon	.	.	.	.	.	.	.	.	.
39 Angola	.	.	.	.	.	.	.	.	.
Sub-Saharan Africa	u 67	36	50	52	.	.	.	.	2.0
	e 67	61	51	48	16	19	16	13	0.6
Francophone countries	u 66	36	53	69	.	.	.	.	1.6
	e 85	61	54	49	14	26	20	23	1.3
Anglophone countries	u 70	57	50	50	.	.	.	.	2.4
	e 68	61	52	53	16	12	11	12	0.3
Other	u 48	42	26	28	.	.	.	.	0.9
	e 92	51	39	29	39	28	19	20	(.)

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for years other than those specified. See the technical notes.

b. Figures are for the most recent available year. See the technical notes.

Table 18. Public recurrent expenditure per secondary student

Country	Expenditure in constant 1985 \$				Expenditure as a percentage of GNP per capita				Expenditure on				
	1979	1975	1980	1983	1979	1975	1980	1983	General secondary	Teacher training	Vocational/technical	in current \$	1983 b/
1 Mali	156	140	163	176	130	119	113	110	74	1045	1585	1.9	
2 Burundi	694	307	185	194	282	207	107	69	184	2223	86	0.4	
3 Niger	694	307	185	194	282	207	107	69	184	2223	86	0.4	
4 Senegal, The	137	135	185	188	52	41	60	65	159	2944	292	9.1	
5 Senegal	451	857	127	71	139	267	44	28	53	644	198	3.6	
6 Chad	.	.	.	.	.	.	.	.	.	.	.	.
Low-income other	173	219	109	119	114	102	57	97	73	605	502	3.8	0.6
7 Ethiopia	116	179	77	74	104	168	67	65	.	.	.	0.9	
8 Zaire	193	56	102	102	34	54	.	.	.	.	.
9 Malawi	452	318	228	183	311	168	131	124	181	.	.	0.3	
10 Guinea-Bissau	125	49	125	49	104	50	50	50	28	104	446	0.3	
11 Tanzania	973	599	39	83	249	246	19	343	231	850	4847	0.7	
12 Burkina Faso	422	.	594	.	197	167	229	.	.	.	.	1.0	
13 Uganda	743	90	224	261	261	46	69	37	132	900	978	1.1	
14 Togo	113	104	104	104	41	32	32	37	97	1201	131	1.3	
15 Central African Rep.	161	84	99	54	54	30	21	21	.	.	.		
16 Madagascar	173	202	181	104	42	32	33	33	.	.	.	0.2	
17 Benin	344	213	120	154	89	45	45	167	.	.	.	0.4	
18 Rwanda	360	346	358	451	156	209	212	167	.	.	.		
19 Kenya	266	179	112	74	124	64	37	22	58	506	281	1.1	
20 Sierra Leone	139	.	.	.	.	.	.	.	.	.	.
21 Guinea	222	222	239	.	.	.	.	.	.	.	.
22 Ghana	100	131	66	39	20	31	17	13	31	191	338	11.4	
23 Sudan	250	.	228	.	84	.	64	.	.	.	.
24 Senegal	.	308	265	252	.	78	73	100	204	5578	458	7.3	
25 Madagascar	.	.	.	.	.	.	.	.	.	.	.
Mid-income oil exporters	612	597	609	456	102	79	62	62	348	3697	1503	1.0	0.3
26 Mauritania	1091	788	625	233	233	173	125	125	441	1804	3398	7.3	
27 Liberia	.	270	148	.	80	49	33	33	116	1330	427	1.2	
28 Gambia	543	496	323	536	80	60	101	101	399	1388	528	2.1	
29 Lesotho	198	282	88	88	.	.	.	.	230	11261	779	1.1	
30 Cote d'Ivoire	896	842	89	726	117	110	11	109	532	9079	1326	0.5	
31 Liberia	647	752	915	310	118	97	42	42	310	310	1326	0.5	
32 Senegal	371	337	310	310	150	37	33	38	348	1348	387	9.5	
33 Botswana	431	373	599	568	150	79	64	62	493	1284	1111	1.1	
34 Mauritius	79	121	204	208	11	13	20	18	206	510	510	0.1	
Mid-income oil importers	612	496	458	361	102	79	62	62	348	1539	945	1.0	0.3
26 Mauritania	1091	788	625	233	233	173	125	125	441	1804	3398	7.3	
27 Liberia	.	270	148	.	80	49	33	33	116	1330	427	1.2	
28 Gambia	543	496	323	536	80	60	101	101	399	1388	528	2.1	
29 Lesotho	198	282	88	88	.	.	.	.	230	11261	779	1.1	
30 Cote d'Ivoire	896	842	89	726	117	110	11	109	532	9079	1326	0.5	
31 Liberia	647	752	915	310	118	97	42	42	310	310	1326	0.5	
32 Senegal	371	337	310	310	150	37	33	38	348	1348	387	9.5	
33 Botswana	431	373	599	568	150	79	64	62	493	1284	1111	1.1	
34 Mauritius	79	121	204	208	11	13	20	18	206	510	510	0.1	
Mid-income oil exporters	612	496	458	361	102	79	62	62	348	1539	945	1.0	0.3
26 Mauritania	1091	788	625	233	233	173	125	125	441	1804	3398	7.3	
27 Liberia	.	270	148	.	80	49	33	33	116	1330	427	1.2	
28 Gambia	543	496	323	536	80	60	101	101	399	1388	528	2.1	
29 Lesotho	198	282	88	88	.	.	.	.	230	11261	779	1.1	
30 Cote d'Ivoire	896	842	89	726	117	110	11	109	532	9079	1326	0.5	
31 Liberia	647	752	915	310	118	97	42	42	310	310	1326	0.5	
32 Senegal	371	337	310	310	150	37	33	38	348	1348	387	9.5	
33 Botswana	431	373	599	568	150	79	64	62	493	1284	1111	1.1	
34 Mauritius	79	121	204	208	11	13	20	18	206	510	510	0.1	
Mid-income oil importers	612	496	458	361	102	79	62	62	348	1539	945	1.0	0.3
26 Mauritania	1091	788	625	233	233	173	125	125	441	1804	3398	7.3	
27 Liberia	.	270	148	.	80	49	33	33	116	1330	427	1.2	
28 Gambia	543	496	323	536	80	60	101	101	399	1388	528	2.1	
29 Lesotho	198	282	88	88	.	.	.	.	230	11261	779	1.1	
30 Cote d'Ivoire	896	842	89	726	117	110	11	109	532	9079	1326	0.5	
31 Liberia	647	752	915	310	118	97	42	42	310	310	1326	0.5	
32 Senegal	371	337	310	310	150	37	33	38	348	1348	387	9.5	
33 Botswana	431	373	599	568	150	79	64	62	493	1284	1111	1.1	
34 Mauritius	79	121	204	208	11	13	20	18	206	510	510	0.1	
Mid-income oil exporters	612	496	458	361	102	79	62	62	348	1539	945	1.0	0.3
26 Mauritania	1091	788	625	233	233	173	125	125	441	1804	3398	7.3	
27 Liberia	.	270	148	.	80	49	33	33	116	1330	427	1.2	
28 Gambia	543	496	323	536	80	60	101	101	399	1388	528	2.1	
29 Lesotho	198	282	88	88	.	.	.	.	230	11261	779	1.1	
30 Cote d'Ivoire	896	842	89	726	117	110	11	109	532	9079	1326	0.5	
31 Liberia	647	752	915	310	118	97	42	42	310	310	1326	0.5	
32 Senegal	371	337	310	310	150	37	33	38	348	1348	387	9.5	
33 Botswana	431	373	599	568	150	79	64	62	493	1284	1111	1.1	
34 Mauritius	79	121	204	208	11	13	20	18	206	510	510	0.1	
Mid-income oil importers	612	496	458	361	102	79	62	62	348	1539	945	1.0	0.3
26 Mauritania	1091	788	625	233	233	173	125	125	441	1804	3398	7.3	
27 Liberia	.	270	148	.	80	49	33	33	116	1330	427	1.2	
28 Gambia	543	496	323	536	80	60	101	101	399	1388	528	2.1	
29 Lesotho	198	282	88	88	.	.	.	.	230	11261	779	1.1	
30 Cote d'Ivoire	896	842	89	726	117	110	11	109	532	9079	1326	0.5	
31 Liberia	647	752	915	310	118	97	42	42	310	310	1326	0.5	
32 Senegal	371	337	310	310	150	37	33	38	348	1348	387	9.5	
33 Botswana	431	373	599	568	150	79	64	62	493	1284	1111	1.1	
34 Mauritius	79	121	204	208	11	13	20	18	206	510	510	0.1	
Mid-income oil exporters	612	496	458	361	102	79	62	62	348	1539	945	1.0	0.3
26 Mauritania	1091	788	625	233	233	173	125	125	441	1804	3398	7.3	
27 Liberia	.	270	148	.	80	49	33	33	116	1330	427	1.2	
28 Gambia	543	496	323	536	80	60	101	101	399	1388	528	2.1	
29 Lesotho	198	282	88	88	.	.	.	.	230	11261	779	1.1	
30 Cote d'Ivoire	896	842	89	726	117	110	11	109	532	9079	1326	0.5	
31 Liberia	647	752	915	310	118	97	42	42	310	310	1326	0.5	
32 Senegal	371	337	310	310	150	37	33	38	348	1348	387	9.5	
33 Botswana	431	373	599	568	150	79	64	62	493	1284	1111	1.1	
34 Mauritius	79	121	204	208	11	13	20	18	206	510	510	0.1	
Mid-income oil importers	612	496	458	361	102	79	62	62	348	1539	945	1.0	0.3
26 Mauritania	1091	788	625	233	233</								

Table 19. Public recurrent expenditure per tertiary student

	Expenditure in constant 1983 \$				Expenditure as a multiple of GNP per capita			
	1970	1975	1980 a/	1983 a/	1970	1975	1980 a/	1983 a/
Low-income economies	2791	3023	2313	1929	.	.	.	.
	3207	3090	2167	2197	13	13	9	10
Low-income semi-arid	.	.	2280	1541	.	.	.	.
	.	.	2140	1337	.	.	15	11
1 Mali	1091	2517	2140	1337	16	20	15	8
2 Burkina Faso	.	23271	5540	2540	.	156	32	14
3 Niger	.	.	.	3018	.	.	.	14
4 Gambia, The	.	.	.	.	.	.	.	.
5 Somalia	.	.	711	891	.	.	3	4
6 Chad	.	.	.	3310	.	.	.	.
Low-income other	2811	2992	2315	2006	.	.	.	.
	4436	3090	2210	2538	11	13	8	10
7 Ethiopia	.	2060	1496	1565*	.	19	13	14*
8 Zaire	.	2316	2271	.	.	12	14	.
9 Malawi	5072	3120	3982	3365	35	17	23	16
10 Guinea-Bissau	.	.	.	.	.	.	.	.
11 Tanzania	6081	6987	12337*	8365	30	29	47*	35
12 Burundi	.	3459	.	3815*	.	16	.	16*
13 Uganda	.	7941	1250	2197	.	20	7	10
14 Togo	239	.	2790	2079	1	.	8	10
15 Central African Rep.	.	3603	2234	1734	.	12	8	6
16 Madagascar	4436	1480	.	.	11	4	.	.
17 Benin	11634	3090	2167	.	49	13	8	.
18 Rwanda	.	2450	3600	4334	.	15	14	16
19 Kenya	1979	2810	3402	1521	9	10	11	4
20 Sierra Leone	.	.	.	2962	.	.	.	9
21 Guinea	.	.	1210	1197	.	.	4	4
22 Ghana	.	3638	1195	619	.	9	3	2
23 Sudan	1050	.	2033	.	6	.	6	.
24 Senegal	.	2006	1849	.	.	5	5	.
25 Mozambique	.	.	.	.	.	.	.	.
Middle-income oil exporters	3585	3678	3116	3436	.	.	.	.
	2462	2791	3205	4087	7	4	4	6
26 Mauritania	.	.	7736	10969	.	.	17	25
27 Liberia	.	.	2160	4405	.	.	4	9
28 Zambia	9317	3075	3110	3912*	14	5	6	7*
29 Lesotho	2462	.	.	1605	11	.	.	4
30 Cote d'Ivoire	5509	7191	3293*	4087	7	9	4*	6
31 Iceland	1601	1544	2897	2287	2	2	4	3
32 Swaziland	.	2908	1489	1548*	.	3	2	2*
33 Botswana	.	4235	6316	8236	.	9	7	9
34 Mauritius	523	2231	3536	4480	1	2	3	4
Middle-income oil exporters	.	.	.	.	.	.	.	.

35 Nigeria	7262	14621	13918*	2101*	11	20	15*	3*
36 Cameroon	.	.	.	3345	.	.	.	4
37 Congo, People's Rep.	2307	6579	2891	.	4	8	3	.
38 Gabon	.	.	.	.	.	.	.	.
39 Angola	.	.	.	.	.	.	.	.
Sub-Saharan Africa	4338	6461	5260	2345	.	.	.	.
	2462	3090	2790	2710	11	12	7	8
Francophone countries	4254	3114	2375	2739	.	.	.	.
	3371	3090	2535	3112	9	12	8	10
Anglophone countries	4338	8977	7533	2314	.	.	.	.
	2462	3120	3110	2625	11	9	6	6
Other	.	2060	1364	1438	.	.	.	.
	.	2060	1104	1228	.	19	8	9

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for years other than those specified. See the technical notes.

Table 20. Distribution of primary public recurrent expenditure by purpose, circa 1983

	Percent of primary recurrent expenditure to					
	Administration	Teachers' emoluments	Teaching materials	Scholarships	Welfare services	Account not distributed
Low-income economies	1.7	87.2	5.8	0.9	3.6	0.8
	0.3	92.0	1.5	(.)	(.)	0.6
Low-income east-afrid	6.4	81.9	4.0	(.)	5.8	2.0
	3.2	86.0	1.7	(.)	(.)	0.3
1 Mali	0.5	97.2	2.4	(.)	(.)	(.)
2 Burkina Faso	(.)	80.3	1.1	(.)	(.)	10.6
3 Niger	6.0	83.8	10.2	(.)	(.)	(.)
4 Gambia, The	.	.	.	.	.	.
5 Senegal	17.1	59.6	(.)	(.)	22.6	0.7
6 Chad	.	.	.	.	.	.
	1.2	87.7	6.0	1.0	3.4	0.7
Low-income other	0.3	93.9	1.5	(.)	(.)	0.8
7 Ethiopia	1.4	95.2	2.5	(.)	0.7	0.2
8 Zaire	.	.	.	.	.	.
9 Malawi	7.9	89.3	(.)	(.)	(.)	2.8
10 Guinea-Bissau	(.)	92.5	(.)	(.)	(.)	7.5
11 Tanzania	2.6	58.2	28.9	6.5	1.3	2.5
12 Burundi	(.)	93.4	1.4	(.)	(.)	0.3
13 Uganda	0.8	95.6	(.)	(.)	(.)	3.6
14 Togo	0.6	97.3	(.)	(.)	(.)	2.1
15 Central African Rep.	.	.	.	.	.	.
16 Madagascar	(.)	99.4	(.)	(.)	(.)	0.6
17 Benin	.	.	.	.	.	.
18 Rwanda	(.)	91.0	4.0	(.)	4.0	1.0
19 Kenya	2.1	85.3	2.6	(.)	10.0	(.)
20 Sierra Leone	.	.	.	.	.	.
21 Guinea	.	.	.	.	.	.
22 Ghana	(.)	98.4	1.6	(.)	(.)	(.)
23 Sudan	.	.	.	.	.	.
24 Senegal	./.	91.4	3.6	0.6	4.5	(.)
25 Mozambique	.	.	.	.	.	.
	1.9	89.6	1.0	1.8	1.3	0.3
Middle-income oil exporters	0.2	89.6	0.6	(.)	0.1	(.)
26 Mauritania	0.2	97.9	1.9	(.)	(.)	(.)
27 Liberia	8.8	83.3	1.1	6.8	(.)	(.)
28 Zambia	7.2	89.6	3.1	(.)	0.2	(.)
29 Lesotho	(.)	99.9	(.)	(.)	(.)	0.1
30 Cote d'Ivoire	0.7	90.0	1.5	5.0	0.7	2.1
31 Zimbabwe	(.)	89.2	(.)	(.)	2.3	8.4
32 Swaziland	(.)	99.4	0.6	(.)	(.)	(.)
33 Botswana	(.)	85.8	(.)	(.)	(.)	14.2
34 Mauritius	13.0	80.8	(.)	./.	5.7	0.5

Middle-income oil exporters	.	.	.	.	.	.
35 Algeria	.	.	.	.	.	.
36 Cameroon	.	.	.	.	.	.
37 Congo, People's Rep.	(.)	99.4	0.1	0.5	0.0	0.0
38 Gabon	.	.	.	.	.	.
39 Angola	.	.	.	.	.	.
	1.7	88.6	3.5	1.3	2.4	2.4
Sub-Saharan Africa	0.3	91.2	1.1	(.)	(.)	0.4
	0.6	92.4	2.0	2.5	1.1	1.4
Francophone countries	(.)	97.2	1.5	(.)	(.)	0.3
	2.1	86.7	4.4	0.8	2.9	3.1
Anglophone countries	1.3	89.3	0.3	(.)	0.1	0.3
	4.6	87.7	1.9	(.)	3.2	0.8
Other	1.4	92.5	(.)	(.)	0.7	0.7

Notes for data comparability and coverage, see the technical notes.
./.. Expenditures are included with teachers' emoluments.

Table 21. Distribution of secondary public recurrent expenditure by purpose, circa 1983

	Percent of secondary recurrent expenditure to:					
	Administration	Teachers' emoluments	Teaching materials	Scholarships	Salaries services	Not distributed
Low-income economies	1.1 (.)	73.0 60.7	6.2 4.7	0.9 (.)	3.1 0.2	0.9 3.0
Low-income semi-arid	6.1 5.3	52.4 56.9	8.4 8.3	(.) (.)	6.1 8.0	3.4 (.)
1 Mali	1.4	54.1	6.8	(.)	(.)	(.)
2 Burkina Faso	(.)	67.8	1.9	(.)	19.9	(.)
3 Niger	9.6	40.4	10.3	(.)	(.)	9.1
4 Gambia, The	.	.	.	.	.	.
5 Somalia	10.7	59.8	12.1	(.)	17.3	0.1
6 Chad	.	.	.	.	.	.
Low-income other	0.7 (.)	77.3 74.7	6.1 4.0	0.9 (.)	3.0 0.2	0.0 6.7
7 Ethiopia	3.1	87.1	6.0	(.)	3.2	0.6
8 Zaire	.	.	.	.	.	.
9 Malawi	4.0	73.3	9.1	(.)	(.)	13.6
10 Guinea-Bissau	(.)	79.3	(.)	(.)	(.)	20.9
11 Tanzania	2.2	44.3	3.6	6.5	27.3	16.9
12 Burundi	(.)	67.8	2.3	(.)	28.5	1.5
13 Uganda	(.)	54.0	(.)	(.)	(.)	46.0
14 Togo	5.3	60.0	4.4	(.)	0.3	3.4
15 Central African Rep.	.	.	.	.	.	.
16 Madagascar	0.1	91.5	1.2	(.)	3.6	2.7
17 Benin	.	.	.	.	.	.
18 Rwanda	(.)	66.0	5.0	(.)	18.0	10.0
19 Kenya	(.)	69.3	(.)	(.)	(.)	30.3
20 Sierra Leone	.	.	.	.	.	.
21 Guinea	.	.	.	.	.	.
22 Ghana	(.)	90.7	9.0	(.)	(.)	0.3
23 Sudan	.	.	.	.	.	.
24 Senegal	(.)	76.1	11.0	0.6	(.)	(.)
25 Mozambique	.	.	.	.	.	.
Middle-income oil exporters	3.3 (.)	67.4 69.3	1.3 1.0	2.4 (.)	3.4 (.)	21.0 4.7
26 Mauritania	6.9	58.4	4.3	(.)	(.)	(.)
27 Liberia	10.3	62.8	3.3	6.8	(.)	(.)
28 Zambia	16.5	39.2	3.3	(.)	17.8	23.1
29 Lesotho	(.)	99.9	(.)	(.)	(.)	0.1
30 Cote d'Ivoire	(.)	69.3	(.)	5.0	(.)	30.3
31 Zimbabwe	(.)	78.5	1.0	(.)	11.3	9.0
32 Swaziland	(.)	87.4	12.6	(.)	(.)	(.)
33 Botswana	(.)	49.2	(.)	(.)	(.)	49.6
34 Mauritius	3.2	93.3	0.1	(.)	0.7	0.9
Middle-income oil exporters	.	.	.	.	.	.
35 Nigeria	.	.	.	.	.	.
36 Cameroon	.	.	.	.	.	.
37 Congo, People's Rep.	(.)	83.9	1.8	0.3	4.0	0.4
38 Gabon	.	.	.	.	.	.
39 Angola	.	.	.	.	.	.
Sub-Saharan Africa	2.1 (.)	72.2 69.3	3.0 3.4	1.3 (.)	3.2 0.2	13.9 3.0
Francophone countries	0.9 (.)	71.1 67.8	2.3 4.4	2.9 (.)	1.9 0.3	17.8 1.3
Anglophone countries	2.6 (.)	72.2 71.4	4.6 2.2	0.8 (.)	7.2 (.)	12.3 11.3
Other	4.2 (.)	82.8 79.3	6.8 6.0	(.) (.)	3.3 3.2	1.0 0.6

Notes: For data comparability and coverage, see the technical notes.
/. Expenditures are included with teachers' emoluments.

Table 22. Distribution of tertiary public recurrent expenditure by purpose, circa 1983

	Percent of tertiary recurrent expenditure to:					
	Administration	Teachers' emoluments	Teaching materials	Scholarships	Welfare services	Not distributed
Low-income economies	2.0 (.)	40.0 52.0	1.8 0.2	46.9 44.9	1.1 (.)	8.2 2.4
1 Mali	(.)	20.9	1.4	77.8	(.)	(.)
2 Burkina Faso	7.8	9.4	7.6	65.3	7.2	2.7
3 Niger	(.)	(.)	(.)	59.6	(.)	40.4
9 Malawi	0.6	91.1	4.1	(.)	(.)	4.3
10 Guinea-Bissau	(.)	67.8	(.)	(.)	(.)	32.2
12 Burundi	(.)	59.8	(.)	40.2	(.)	0.1
14 Togo	3.4	44.1	0.4	49.6	0.3	2.1
18 Rwanda	./.	72.1	(.)	27.7	(.)	0.2
Middle-income economies	4.5 (.)	54.0 73.2	1.8 (.)	34.0 25.6	1.1 (.)	5.4 0.3
26 Mauritania	13.0	17.5	7.5	62.1	(.)	(.)
28 Zambia	(.)	81.5	(.)	18.5	./.	(.)
29 Lesotho	(.)	100.0	(.)	./.	./.	(.)
30 Cote d'Ivoire	12.2	22.7	(.)	51.1	(.)	13.9
31 Zimbabwe	(.)	92.4	0.2	./.	6.0	1.5
32 Swaziland	(.)	90.0	10.0	(.)	(.)	(.)
33 Botswana	(.)	74.4	(.)	25.6	./.	(.)
34 Mauritius	(.)	100.0	(.)	./.	./.	(.)
37 Congo, People's Rep.	(.)	17.3	10.7	65.4	(.)	6.6
Sub-Saharan Africa	4.3 (.)	49.7 67.8	1.9 0.1	37.2 33.9	1.2 (.)	6.5 0.9
Francophone countries	7.1 (.)	24.7 20.9	2.7 0.4	55.1 59.6	0.4 (.)	10.0 2.1
Anglophone countries	(.) (.)	87.3 91.1	0.6 0.1	9.2 (.)	2.5 (.)	0.9 (.)
Other	(.)	67.8	(.)	(.)	(.)	32.2

Notes: For data comparability and coverage, see the technical notes.

./.. Expenditures are included with teachers' emoluments.

Table 21. Primary and secondary teachers' average salaries, circa 1983

	Primary teacher's average salary		Secondary teacher's average salary	
	current \$	as a multiple of income per capita	current \$	as a multiple of income per capita
Low-income economies	1361	.	3389	.
	1329	7.3	2977	12.2
Low-income semi-arid	1773	.	1603	.
	2127	11.1	1982	9.2
1 Mali	1990	12.5	1003	6.3
2 Burkina Faso	2265	12.5	2301	13.9
3 Niger	2312	9.6	2919	12.2
4 Gambia, The	.	.	.	.
5 Senegal	985	3.9	1304	3.2
6 Chad	.	.	.	.
Low-income other	1332	.	3591	.
	1233	6.9	2599	12.4
7 Ethiopia	1139	10.0	2333	20.7
8 Zaire	.	.	.	.
9 Malawi	744	3.5	2399	12.4
10 Guinea-Bissau	1220	0.5	1991	10.3
11 Tanzania	662	2.8	6657	28.6
12 Burundi	1033	6.9	4010	13.2
13 Uganda	270	1.3	2407	11.3
14 Togo	1329	0.7	2577	9.2
15 Central African Rep.	.	.	.	.
16 Madagascar	.	.	.	.
17 Benin	.	.	.	.
18 Rwanda	2623	9.0	4061	13.0
19 Kenya	1233	3.6	1330	3.9
20 Sierra Leone	.	.	.	.
21 Guinea	.	.	.	.
22 Ghana	3070	9.9	5142	16.6
23 Sudan	.	.	.	.
24 Senegal	3211	7.3	4666	10.6
25 Mozambique	.	.	.	.
Middle-income oil importers	4120	.	8431	.
	3077	4.0	5314	10.0
26 Mauritania	6671	15.4	11331	28.2
27 Liberia	1801	3.8	3037	6.3
28 Zambia	3326	6.3	5541	10.5
29 Lesotho	1794	4.0	5314	11.9
30 Cote d'Ivoire	6093	8.6	19144	21.4
31 Zimbabwe	4110	5.6	7399	10.0
32 Swaziland	3077	3.3	5202	5.6
33 Botswana	2011	3.1	4937	5.4
34 Mauritius	2899	2.5	4309	3.7
Middle-income oil exporters	.	.	.	.
35 Nigeria	.	.	.	.
36 Cameroon	.	.	.	.
37 Congo, People's Rep.	4966	4.8	3071	4.9
38 Gabon	.	.	.	.
39 Angola	.	.	.	.
Sub-Saharan Africa	2079	.	4681	.
	2238	5.6	4061	10.6
Francophone countries	3741	.	6685	.
	2367	8.8	4039	13.0
	1804	.	4366	.
Anglophone countries	2306	3.6	3058	10.2
	1120	.	2139	.
Other	1139	0.5	1891	10.3

Notes: For data comparability and coverage, see the technical notes.

Table 24. External aid to Africa's education and training by donor, 1981-1983 average

millions of dollars								
		Education sector a/			Project related training b/	Cost of hosting African students abroad c/	Total	Total as a percentage of all aid to African education
		Overseas fellowships	Other	Sub-total				
I. OECD and UPEC donors	t	160.2	617.3	785.5	394.4	189.8	1369.7	u 88.1
A. Concessional aid	t	160.2	589.2	757.4	366.9	189.8	1314.1	u 84.5
(1) Bilateral	t	149.4	337.8	507.2	246.6 +	189.8	943.6	u 60.7
France		23.4	182.8	206.2	.	73.2	279.4	18.0
Belgium		14.6	43.9	58.5	.	7.4	65.9	4.2
United Kingdom		15.7	24.2	39.9	.	23.8	63.7	4.1
United States		7.0	29.3	36.3	.	64.3	100.6	6.5
Germany, Federal Rep.		4.5	14.7	19.2	.	7.5	26.7	1.7
Italy		2.4	15.4	17.8	.	3.7	21.3	1.4
Sweden		0.3	23.0	23.3	.	0.0	23.3	1.5
Others and not distributed		81.5	24.5	106.0	246.6 +	9.9	362.5	23.3
(2) Multilateral	t	18.8	231.4	250.2	120.3	0.0	370.5	u 23.8
International Development Association		.	128.6	128.6	54.3	0.0	182.9	11.8
African Development Fund		0.0	33.7	33.7	14.6 +	0.0	48.3	3.1
European Development Fund		13.2	26.6	39.8	.	0.0	39.8	2.6
United Nations Development Program		2.2	15.8	18.0	.	0.0	18.0	1.2
UNICEF		0.6	7.8	8.4	.	0.0	8.4	0.5
Others and not distributed		2.8	18.9	21.7	31.4 +	0.0	73.1	4.7
B. Non-concessional aid	t	0.0	28.1	28.1	27.5	0.0	55.6	u 3.6
IBRD		0.0	11.9	11.9	7.9	0.0	19.8	1.3
African Development Bank		0.0	16.2	16.2	19.6 +	0.0	35.8	2.3
II. East European non-market economies and Cuba	t	32.8 +	7.2 +	40.0 +	.	30.8 +	90.8 +	u 5.8 +
III. Other (Egypt, India)	t	0.0	0.0	0.0	.	4.7	4.7	u 0.3
IV. Non-government organizations	t	9.8 +	80.2 +	90.0 +	.	0.0 +	90.0 +	u 5.8 +
Total	t	210.8	704.7	915.5	394.4	245.3	1555.2	u 100.0

Notes: For data comparability and coverage, see the technical notes.
Figures with a cross are estimates, see the technical notes.

- a. Disbursements to central departments of education.
- b. Aid for training in sectors other than education.
- c. Host country subsidization of African students studying abroad, over and above any fellowships.

Table 25. Concessional education sector aid from OECD and OPEC members by recipient country, 1981-83 average

	Net disbursements a/							
	Non-capital			Capital			Total	
	Dollars (millions)	As percentage of total recurrent education budget	Percentage going to females	Dollars (millions)	As percentage of total capital education budget	Dollars (millions)	Education aid as a percentage of total external aid	Education aid per capita
Low-income economies	t 468.9	u 18.8 e 19.7	35.2 32.6	t 107.2	e 31.2 e 47.7	t 576.1	u 10.4 e 11.0	2.41 2.94
Low-income semi-arid	t 73.5	u 29.6 e 29.5	31.0 32.5	t 25.5	u 44.7 e 54.9	t 99.0	u 7.9 e 9.9	3.58 3.42
1 Mali	12.3	21.9	24.7	3.0	86.4	19.3	7.3	2.15
2 Burkina Faso	15.3	32.4	32.5	4.3	70.9	19.6	9.2	3.02
3 Niger	15.1	22.1	32.7	12.5	36.7	27.6	10.6	4.68
4 Senegal, The	3.0	26.6	45.6	2.4	38.0	3.4	11.3	7.71
5 Somalia	14.4	38.2	28.0	2.3	36.2	16.7	3.6	3.71
6 Chad b/	13.4	53.5	.	1.0	100.0	14.4	22.3	3.13
Low-income other	t 393.4	u 17.6 e 17.0	36.0 32.6	t 81.7	u 28.1 e 47.7	t 477.1	u 11.1 e 13.1	2.28 2.56
7 Ethiopia	21.6	16.4	31.1	6.9	18.4	28.1	14.1	0.85
8 Ivory Coast	40.2	10.6	26.8	5.0	26.2	65.2	13.0	1.47
9 Guinea	10.0	23.2	35.7	7.8	53.6	17.8	14.7	2.74
10 Guinea-Bissau b/	.	.	.	.	.	.	.	.
11 Tanzania	36.7	11.9	.	8.1	18.4	38.8	5.7	1.96
12 Burundi	18.4	38.6	31.3	5.1	58.8	23.5	18.5	5.47
13 Uganda	2.1	2.3	37.8	2.2	11.1	4.3	3.2	0.32
14 Togo	10.7	18.7	27.9	3.6	74.3	14.3	18.5	5.11
15 Central African Rep.	13.7	33.9	22.1	2.2	84.6	15.9	17.7	6.63
16 Madagascar	20.8	19.7	40.7	1.9	14.6	21.9	8.7	2.38
17 Benin	8.7	12.9	27.2	4.1	47.7	12.8	15.9	3.46
18 Rwanda	9.9	17.0	29.6	5.9	52.1	15.8	10.5	2.87
19 Kenya b/	124.5	24.9	47.2	.	.	124.5	25.7	6.88
20 Sierra Leone	7.6	17.1	33.9	3.2	63.8	10.8	13.1	3.38
21 Guinea	1.9	1.9	32.8	6.9	79.0	8.8	9.8	1.34
22 Ghana	9.4	11.1	31.1	1.8	9.3	11.2	7.9	0.92
23 Sudan	7.0	8.8	41.9	6.0	17.0	13.0	1.8	0.84
24 Senegal	50.6	33.1	32.6	9.1	.	59.7	21.0	9.95
25 Benin	8.4	.	42.1	2.3	.	10.7	5.1	0.85
Middle-income oil importers	t 95.9	u 6.5 e 11.1	43.6 44.8	t 21.9	u 12.0 e 28.0	t 117.8	u 11.4 e 10.7	4.16 4.16
26 Mauritania b/	.	.	.	.	.	.	.	.
27 Liberia	6.5	11.3	37.8	2.0	26.8	8.5	7.8	4.25
28 Zambia	21.8	10.9	.	2.6	51.8	24.4	7.9	4.07
29 Lesotho	9.5	27.9	54.7	2.6	21.5	12.1	13.5	8.64
30 Cote d'Ivoire b/	24.3	4.3	33.3	0.7	0.6	25.0	18.3	2.81
31 Zimbabwe	10.4	2.2	49.5	6.5	31.8	16.9	7.8	2.25
32 Swaziland	8.7	23.3	44.8	1.6	19.9	10.3	36.7	14.71
33 Botswana	12.4	20.7	47.7	5.3	35.5	17.7	17.4	19.67
34 Mauritius	2.3	4.5	38.7	0.6	29.1	2.9	6.1	3.22
Middle-income oil exporters	t 53.3	u 1.2 e 3.9	34.4 33.7	t 10.2	u 1.3 e 2.9	t 63.5	u 13.7 e 14.0	0.98 2.83
35 Nigeria	10.3	0.3	.	0.8	0.1	11.1	30.2	0.12
36 Cameroon	19.0	10.1	33.7	7.3	11.1	26.3	12.4	2.83
37 Congo, People's Rep.	12.8	10.8	.	0.2	2.9	13.0	14.0	7.65
38 Gabon	3.1	3.9	31.3	0.4	1.4	3.5	5.6	5.00
39 Angola	8.1	1.9	37.5	1.9	14.2	9.6	16.0	1.20
Sub-Saharan Africa	t 418.1	u 7.3 e 16.7	36.3 33.5	t 139.3	u 10.1 e 36.5	t 757.4	u 10.7 e 13.1	2.01 3.38
Francophone countries	t 289.4	u 13.5 e 18.7 e 4.9	30.7 31.3 44.5	t 73.2	u 19.0 e 49.9 e 6.1	t 362.6	u 13.2 e 13.0 e 9.8	3.15 3.13 1.61
Anglophone countries	t 276.2	u 11.9 e 7.2	40.3 33.1	t 53.5	u 24.2 e 19.7	t 329.7	u 11.3 e 7.0	3.30 1.12
Other	t 52.5	u 14.4	34.3	t 12.6	u 18.4	t 65.1	u 9.6	1.03

Notes for data comparability and coverage, see the technical notes.

a. See notes to Table 24.

b. Countries for which only partial information on education aid is available. Figures understate actual education aid.

Table 26. External education sector aid from OECD and OPEC donors by level and type of education

	Dollars (millions) 1981-83 average	Percentage of total						
		Primary	Secondary			Tertiary	Other and not distributed	
			General	Teacher training	Vocational/ technical			
Donor groups								
A. Concessional aid	t 757.4	u 7.4	16.0	6.2	16.9	34.2	19.3	
(1) Bilateral	t 507.2	u 3.4	20.9	3.0	14.9	42.4	15.4	
France	206.2	0.9	34.1	0.9	20.2	39.4	4.5	
Belgium	58.5	0.3	30.4	0.3	17.1	40.7	11.2	
United Kingdom	39.9	0.3	19.0	3.0	5.0	56.6	13.3	
United States	36.3	6.9	10.5	17.1	6.9	29.7	28.9	
Germany, Federal Rep.	19.2	.	4.2	1.6	14.6	59.9	19.7	
Italy	17.8	15.7	5.6	.	7.9	51.7	19.1	
Sweden	23.3	29.6	2.1	3.0	10.5	15.3	31.3	
Others	106.0	2.6	3.7	3.7	10.2	49.4	30.4	
(2) Multilateral	t 250.2	u 15.7	6.1	12.7	20.9	17.5	27.1	
International Development Association	128.6	27.7	0.1	10.6	26.1	11.4	16.1	
African Development Fund	33.7	(.)	0.9	44.5	31.0	2.6	12.2	
European Development Fund	39.0	(.)	4.0	(.)	14.3	60.1	21.6	
United Nations Development Program	10.0	2.0	1.7	10.6	12.0	25.0	47.1	
UNICEF	8.4	39.3	(.)	13.1	2.4	(.)	45.2	
Others	21.7	(.)	(.)	(.)	(.)	(.)	100.0	
B. Nonconcessional aid	t 28.1	u 22.4	3.6	10.7	20.1	20.6	6.4	
IBRD	11.9	27.7	0.4	10.9	26.1	11.0	15.1	
African Development Bank	16.2	10.5	(.)	24.7	29.6	27.2	(.)	
Total	t 785.5	u 8.0	15.6	6.7	17.3	33.7	18.7	
Recipient groups a/								
Low-income semi-arid	t 99.0	u 4.1	15.3	1.6	13.6	39.8	23.6	
Low-income other	t 477.1	u 4.2	12.4	4.3	27.3	31.3	20.5	
Middle-income oil importers	t 117.0	u 10.4	13.0	0.6	11.2	30.1	23.9	
Middle-income oil exporters	t 63.5	u 3.4	15.2	13.2	28.0	22.1	18.1	
Francophone countries	t 362.6	u 0.3	3.4	0.0	20.4	26.3	23.4	
Anglophone countries	t 329.7	u 2.1	21.5	4.5	17.0	36.6	18.3	
Other	t 63.1	u 7.2	6.9	2.6	27.7	23.4	32.2	

Notes: For data comparability and coverage, see the technical notes.

a. Concessional aid only.

Table 27. External education sector aid from OECD & OPEC donors by purpose

		Dollars (millions) 1981-83 average	Percentage of total					
			Capital	Technical assistance	Fellowships	Operating costs and supplies	Non- specified	
Donor groups								
A. Concessional aid	t	757.4	u	26.4	44.3	16.9	10.9	1.5
(1) Bilateral	t	507.2	u	7.4	57.5	20.5	12.7	1.9
France		206.2		2.4	82.6	11.4	3.8	(.)
Belgium		58.5		0.3	68.3	25.0	6.4	(.)
United Kingdom		39.9		2.0	55.4	39.3	3.3	(.)
United States		36.3		7.2	56.7	19.3	16.8	(.)
Germany, Federal Rep.		19.2		8.3	41.7	23.4	26.6	(.)
Italy		17.8		1.7	66.3	13.5	18.5	(.)
Sweden		23.3		24.1	23.4	0.7	49.9	(.)
Other		106.0		20.3	12.4	34.4	24.2	8.7
(2) Multilateral	t	250.2	u	64.9	17.4	9.6	7.2	0.9
International Development Association		128.6		83.2	16.8	(.)	(.)	(.)
African Development Fund		33.7		86.8	8.3	1.9	3.0	(.)
European Development Fund		39.8		52.8	7.5	33.2	6.5	(.)
United Nations Development Program		18.0		(.)	64.2	12.2	23.6	(.)
UNICEF		8.4		9.5	23.8	7.1	59.5	0.1
Other		21.7		20.3	12.4	34.4	24.2	8.7
B. Nonconcessional aid	t	28.1	u	85.3	11.9	1.1	1.7	(.)
IBRD		11.9		83.2	16.8	(.)	(.)	(.)
African Development Bank		16.2		86.8	8.3	1.9	3.0	(.)
Total	t	785.5	u	28.5	43.1	16.4	10.6	1.4
Recipient groups a/								
Low-income semi-arid	t	99.0	u	25.8	93.1	12.2	5.6	3.3
Low-income other	t	477.1	u	17.1	34.1	14.8	8.2	25.8
Middle-income oil importers	t	117.8	u	34.3	42.3	10.7	11.5	1.2
Middle-income oil exporters	t	63.5	u	44.4	34.9	11.7	8.7	0.7
Francophone countries	t	362.6	u	19.4	20.7	15.1	9.9	34.9
Anglophone countries	t	329.7	u	26.1	34.2	12.5	5.3	1.9
Other	t	65.1	u	31.8	32.7	11.6	20.4	3.5

Note: For data comparability and coverage, see the technical notes.

a. Concessional aid only.

Table 28. External public debt of the education sector

		Debt outstanding and disbursed (US\$ millions)			Debt service profile (US\$ millions)								
					Actual					Projected /a			
		1970	1980	1984	1970	1980	1981	1982	1983	1984	1985	1986	1987
Low-income economies	t	42.6	364.1	577.4	1.0	11.4	10.5	6.9	20.0	16.3	25.6	21.5	21.5
Low-income semi-arid	t	0.2	42.4	101.1	.0	0.3	0.5	2.2	4.2	1.6	3.7	5.0	5.9
1 Mali		0.1	20.4	24.0	(.)	0.1	0.3	0.2	0.3	0.3	0.3	0.4	0.5
2 Burkina Faso		0.0	3.5	9.0	0.0	(.)	(.)	(.)	0.1	0.1	0.1	0.1	0.1
3 Niger		0.0	0.2	22.6	0.0	(.)	(.)	1.6	3.6	0.9	1.4	3.1	2.9
4 Senegal, The		0.0	1.8	5.5	0.0	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
5 Somalia		0.0	11.6	33.6	0.0	0.1	0.1	0.2	0.2	0.2	1.7	2.1	2.2
6 Chad		0.1	4.9	4.0	0.0	0.0	0.0	(.)	(.)	0.2	0.1	0.1	0.1
Low-income other	t	42.4	321.7	476.3	1.0	11.1	10.1	4.0	15.8	14.7	21.9	15.7	15.7
7 Ethiopia		6.5	49.9	77.0	(.)	0.5	0.7	0.0	0.9	1.1	1.2	1.5	1.7
8 Zaïre		0.9	6.7	8.4	0.3	(.)	0.1	0.1	0.1	0.2	0.1	0.3	0.3
9 Malawi		7.9	21.0	57.3	(.)	0.2	0.2	0.3	0.4	0.6	0.5	0.7	0.8
10 Guinea-Bissau		0.0	1.3	2.0	0.0	(.)	0.2	0.7	(.)	(.)	(.)	(.)	0.1
11 Tanzania		9.5	31.6	40.8	0.1	0.5	0.6	0.5	0.6	0.7	0.9	1.0	1.0
12 Burundi		0.0	9.9	29.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4
13 Uganda		9.6	21.0	22.9	0.1	0.3	0.5	0.3	0.3	0.6	0.6	0.6	0.8
14 Togo		(.)	0.1	12.5	(.)	0.0	(.)	(.)	0.1	0.1	0.1	0.1	0.1
15 Central African Rep.		0.0	3.9	11.3	0.0	(.)	(.)	0.1	0.1	0.1	0.2	0.2	0.2
16 Madagascar		1.6	79.6	50.5	0.1	4.0	4.9	0.5	11.5	8.5	7.8	1.7	0.5
17 Benin		(.)	0.0	3.0	(.)	0.0	0.0	0.0	0.0	(.)	0.1	0.1	0.1
18 Rwanda		0.0	2.7	6.7	0.0	(.)	(.)	(.)	(.)	0.1	0.2	0.3	0.3
19 Kenya		8.4	22.3	43.0	(.)	0.5	0.5	0.6	0.0	1.0	1.4	1.9	2.1
20 Sierra Leone		(.)	8.9	14.4	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3
21 Guinea		0.0	4.7	22.3	0.0	(.)	(.)	0.1	0.1	0.1	2.4	2.4	3.1
22 Ghana		2.0	2.3	2.1	0.3	0.0	0.0	0.1	(.)	0.1	0.1	0.1	0.1
23 Sudan		0.0	22.2	21.7	0.0	0.2	0.2	0.2	0.2	0.2	1.6	0.6	0.6
24 Senegal		0.0	32.7	49.1	0.0	4.7	1.9	0.4	0.3	0.0	4.1	3.6	3.2
25 Mozambique		.	.	.	.	.	.	.	.	.	.	.	.
Middle-income oil importers	t	5.3	233.6	216.7	0.3	43.7	33.0	39.3	39.0	22.9	38.7	32.0	32.6
26 Mauritania		0.0	3.2	8.9	0.0	1.2	0.9	0.1	(.)	(.)	0.2	0.2	0.2
27 Liberia		2.3	15.0	17.5	(.)	0.3	0.2	0.9	1.2	1.2	1.4	1.4	1.4
28 Zambia		0.4	39.0	32.5	0.2	4.9	4.3	4.9	6.3	5.9	5.0	5.0	5.0
29 Lesotho		0.0	0.0	4.9	0.0	0.0	0.0	0.0	(.)	(.)	(.)	0.1	0.1
30 Côte d'Ivoire		1.6	150.7	81.2	0.1	33.9	26.0	30.0	27.3	11.1	24.6	15.5	15.9
31 Zimbabwe		0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32 Swaziland		0.0	6.9	14.3	0.0	0.4	0.2	0.6	0.7	1.1	1.9	1.1	1.8
33 Botswana		0.0	8.1	22.1	0.0	0.5	0.6	0.0	1.2	1.7	3.1	5.4	5.5
34 Mauritius		0.1	11.9	15.4	(.)	0.6	0.7	1.3	2.1	1.9	1.6	1.8	1.9
Middle-income oil exporters	t	4.7	133.3	166.0	0.1	19.1	17.4	13.4	10.7	15.4	25.9	40.0	49.3
35 Nigeria		2.8	56.9	96.3	(.)	2.8	3.1	3.0	5.7	10.6	20.6	33.6	43.0
36 Cameroon		1.7	47.5	50.0	(.)	1.4	3.6	1.1	2.4	2.1	2.4	3.6	3.9
37 Congo, People's Rep.		0.0	3.5	10.7	0.0	0.1	0.5	1.0	1.0	1.1	1.3	1.1	0.9
38 Gabon		0.2	25.5	8.1	0.1	14.0	10.1	7.5	1.5	1.5	1.6	1.0	1.5
39 Angola		.	.	.	.	.	.	.	.	.	.	.	.
Sub-Saharan Africa	t	52.6	735.0	930.1	1.4	74.2	60.9	59.7	69.7	54.6	90.1	93.5	103.4
Francophone countries		4.7	133.9	170.0	0.6	59.0	44.3	44.5	39.3	20.8	41.0	34.9	35.6
Anglophone countries		41.4	330.2	466.7	0.8	14.6	15.6	13.5	29.3	32.6	46.1	35.0	63.8
Other		6.5	62.9	113.4	(.)	0.6	1.0	1.6	1.2	1.2	3.0	3.6	4.0

Notes: For data comparability and coverage, see the technical notes.

a. Projected debt service is based on contractual obligations on debt outstanding at the end of 1984. It excludes the effect of subsequent debt relief agreements.

PART B
ECONOMIC AND SOCIAL INDICATORS

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Table 1. Basic Indicators

	Population (millions) mid-1984	Area (thousands of square kilometers)	GNP per capita				Life expectancy at birth (years) 1984
			Dollars 1984	Average annual growth rate (percent) 1965-84	Average annual rate of inflation		
					1965-73	1973-84 ^a	
Low-income economies	t 239.2	13493	210	-0.2	4.3	19.6	48
			260	0.6	3.7	11.2	46
Low-income semi-arid	t 38.9	4714	160	0.2	4.1	12.2	43
			190	1.1	3.9	10.0	45
1 Mali	7.3	1260	160	1.1	7.6	10.4	46
2 Burkina Faso	6.6	274	160	1.2	2.6	10.6	45
3 Niger	6.2	1267	190	-1.3	4.0	11.5	43
4 Gambia, The	0.7	11	260	1.1	3.0	10.4	42
5 Senegal	5.2	638	260	.	3.8	20.2	46
6 Chad	6.9	1284	.	.	4.3	.	44
Low-income other	t 228.3	10979	220	-0.3	4.3	20.1	49
			260	0.6	3.4	11.5	48
7 Ethiopia	42.2	1222	110	0.6	1.8	4.4 ^e	44
8 Zaïre	29.7	2349	140	-1.6	10.7	48.2 ^e	51
9 Malawi	6.8	119	180	1.7	4.5	9.6	45
10 Guinea-Bissau	0.9	36	190	.	.	9.1	38
11 Tanzania	21.5	949	210	0.6	3.2	11.5 ^e	52
12 Burundi	4.6	28	220	1.9	2.9	12.2	48
13 Uganda	15.0	236	230	-2.9	5.6	64.5	51
14 Togo	2.9	57	250	0.3	3.1	8.2	52
15 Central African Rep.	2.5	623	260	-0.1	3.0	13.8	49
16 Madagascar	9.9	587	260	-1.6	4.1	14.4	52
17 Benin	3.9	113	270	1.8	3.6	16.8	49
18 Rwanda	5.8	26	280	2.3	7.7	10.5	47
19 Kenya	19.5	583	310	2.1	2.3	10.8	54
20 Sierra Leone	3.7	72	310	0.6	1.9	15.4	58
21 Guinea	5.9	246	330	1.1	3.0	4.5	38
22 Ghana	12.3	239	350	-1.9	8.1	52.2	53
23 Sudan	21.3	2586	360	1.1	7.2	19.3	48
24 Senegal	6.6	196	380	-0.5	3.0	9.0	46
25 Mozambique	13.4	802	.	-2.0	4.5	11.8	46
Middle-income oil importers	t 32.4	3288	630	1.1	3.2	10.6	54
			610	1.5	4.3	11.1	54
26 Mauritania	1.7	1031	480	0.3	3.9	7.7	46
27 Liberia	2.1	111	470	0.9	1.5	6.7	50
28 Zambia	6.4	753	470	-1.4	5.8	10.5	52
29 Lesotho	1.5	30	530	5.9	6.6	11.9 ^e	54
30 Côte d'Ivoire	9.9	323	610	0.8	3.0	11.1	52
31 Zimbabwe	8.1	391	760	1.5	1.1	11.4	57
32 Swaziland	0.7	17	790	4.0	4.3	14.0 ^e	54
33 Botswana	1.0	688	960	8.4	4.4	9.8	58
34 Mauritius	1.0	2	1090	2.7	5.6	12.7	66
Middle-income oil exporters	t 117.5	3236	710	1.9	8.9	13.7	50
			970	2.9	5.8	13.4	51
35 Nigeria	96.5	924	730	2.7	10.3	13.4	50
36 Cameroon	9.9	475	880	2.9	5.8	12.7	54
37 Congo, People's Rep.	1.8	342	1180	3.7	4.6	12.3	57
38 Gabon	0.8	268	4100	5.9	5.8	15.5	51
39 Angola	8.5	1247	.	-3.7	6.9	18.4 ^e	43
Sub-Saharan Africa	t 409.2	22207	390	1.0	4.5	15.2	49
			310	1.1	4.2	11.5	49
Francophone countries	t 120.7	10725	330	1.0	4.2	14.0	49
			358	1.1	4.5	12.1	51
Anglophone countries	t 218.3	7538	520	1.7	5.9	16.2	50
			243	0.2	3.0	10.5	46
Other	t 78.2	3944	.	.	2.6	.	45
			393	2.1	4.8	14.8	46

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for 1973-83, not 1983-84.

Table 2. Languages of Sub-Saharan Africa

	Number of languages		Principal languages a/	Percent of population speaking language as:		Languages used as:				
	Total	Principal		Mother tongue	Second language	the medium of instruction in:				
						Official language	Lingua franca	Lower primary	Upper primary	Post-primary
Low-income economies										
1 Mali	10	4	Bambara Fulfulde Arabic French	31 20 100	20	x x x	x	x	x	x
2 Burkina Faso	10+	5	Mossi French	50 100		x	x	x	x	x
3 Niger	7+	7	Hausa Songhai French	46 100	24 19	x	x	x	x	x
4 Senegal, The	8	5	Wolof Mooré Fulfulde English	41 13 14 100	19	x x	x	x	x	x
5 Somalia	3+	4	Somali Arabic English Italian	95	2	x x x	x	x	x	x
6 Chad	15+	3	Arabic Sara French	13 19 100	40 10 13	x x	x	x	x	x
7 Ethiopia	70	4	Americ Tigrinya Galla English	31 14 35 100	40	x x	x	x		x
8 Zaire	300	5	Shwili Lingala Luba Kongo French	36 28 17 12 100	13 41 18	x x x x	x	x	x	x
9 Malawi	15+	4	Nyanja Lecuo Yao English	50 15 14	10 5	x	x	x	x	x
10 Guinea-Bissau	80	5	Crioulo Portuguese	100		x	x	x	x	x

Table 2. Languages of Sub-Saharan Africa (cont. 'd)

	Number of languages		Principal languages of	Percent of population speaking language as:		Language used as:				
	Total	Principal		Other tongue	Second language	the medium of instruction in:				
						Official language	Lingua franca	Lower primary	Upper primary	Post-primary
20 Sierra Leone	18	4	Mende Temne Krio English	31 23 100	5 45	x x	x x	x x	x x	
21 Guinea	15+	4	Malinke Fulfulde Sousou French	30 28 16	18 5	x x	x x	x x	x x	
22 Ghana	34	9	Ashanti Ewe Akan Nanana Adangme Nkonya Ga Dagbani English	16 12 40 100	60	x x	x x	x x	x x	
23 Sudan	100	13	Arabic Shilluk Seri Lelaka Zande Kresh Ndogo Nara English	50 100	10	x x	x x	x x	x x	
24 Senegal	10+	8	Wolof Fula Serer Diola Maliinke Sentine Arabic French	42 19 15 7 6 3 100	40 5	x x x x	x x	x x	x x	
25 Mozambique	20	8	Portuguese	100		x	x	x	x	

Table 2. Languages of Sub-Saharan Africa (cont. 'd)

	Number of languages		Principal languages of	Percent of population speaking language as:		Language used as				
	Total	Principal		Mother tongue	Second language	the medium of instruction in:				
						Official language	Lingua franca	Lower primary	Upper primary	Post-primary
Middle-income oil exporters										
26 Mauritania	5	4	Arabic Fulfulde Wolof French	60 100	7 13 	x x	x x	x x	x x	x
27 Liberia	20	4	Bassa Kpelle Kriso English	14 20 40 100	23 40 50 	x x	x x	x x	x x	x
28 Zambia	73	8	Dezha Nyanja Tonga Konde Lunda Luvale English	31 11 11 100	23 42 	x x	x x	x x	x x	x x
29 Lesotho	2	2	Sotho English	92 100	4 	x x	x x	x x	x x	x x
30 Cote d'Ivoire	60	5	Akan Dyula Anyi-Bocnie Senufo French	25 16 20 12 100	50 35 	x x	x x	x x	x x	x x
31 Zimbabwe	20+	3	Shona Ndebele English	75 16 100	 	x x	x x	x x	x x	x x
32 Swaziland	10	3	Swati English	90 100	 	x x	x x	x x	x x	x x
33 Botswana	5	2	Tswana English	90 100	9 	x x	x x	x x	x x	x x
34 Mauritius	25	8	French English	100 100	 	x x	 	 	 	

Table 2. Languages of Sub-Saharan Africa (cont. d)

	Number of languages		Principal languages a/	Percent of population speaking language as:		Language used as:				
	Total	Principal		Mother tongue	Second language	the medium of instruction in:				
						Official language	Lingua franca	Lower primary	Upper primary	Post-primary
Middle-income oil exporters										
33 Nigeria	330+	11	Hausa	30	20		x	x		
			Yoruba	20			x	x		
			Ibo	10				x		
			Fulfulde				x	x		
			Pidgin-English				x			
			Kanuri				x			
			Edo					x		
			Ijo					x		
			Efik					x		
			Idoma					x		
			English	100		x			x	x
36 Cameroon	200	9	Sehilete	27						
			Fang	10						
			Esande				x			
			Fulfulde				x			
			French			x		x	x	x
			English	100		x		x	x	x
37 Congo, People's Rep.	13+	4	Kongo	32			x			
			Tshu	25						
			Lingala				x			
			French	100		x		x	x	x
38 Gabon	13+	4	Fang	30	20		x			
			Eshira	20						
			Pidgin-English				x			
			French	100		x		x	x	x
39 Angola	20	4	Kongo	15						
			Kimbundu	23						
			Umbundu	30	20					
			Portuguese	100	35	x		x	x	x

Notes: For data comparability and coverage see the technical notes.

a. Only those languages for which data were available are shown. See the technical notes for other principal languages.

Table 3. Population growth and projections

	Average annual growth of population (percent)			Population (millions)			Hypothetical size of stationary population (millions)	Assumed year of reaching net reproduction rate of 1	Population censuses 1985		
	1945-73	1973-84	1980-2000	1984	1990	2000					
	u	e	t								
Low-income economies	u	2.6	2.8	3.1							
	e	2.4	2.6	3.0	t	259	310	419			
Low-income semi-arid	u	2.5	2.5	2.7							
	e	2.2	2.7	2.6	t	31	36	47			
1 Mali		2.6	2.6	2.6		7	9	11	36	2035	1.8
2 Burkina Faso		2.0	1.8	2.0		7	7	9	31	2040	1.6
3 Niger		2.3	3.0	3.2		6	7	10	36	2040	1.9
4 Gambia, The		2.1	3.5	2.6		1	1	1	3	2040	.
5 Somalia		3.5	2.8	3.0		5	6	8	30	2040	1.9
6 Chad		1.9	2.1	2.5		5	6	7	22	2040	1.8
Low-income other	u	2.6	2.9	3.1							
	e	2.4	2.8	3.1	t	228	274	371			
7 Ethiopia		2.6	2.8	2.7		42	49	65	204	2040	1.9
8 Togo		2.4	3.0	3.2		30	36	47	139	2030	1.9
9 Malawi		2.8	3.1	3.2		7	8	11	38	2040	1.9
10 Guinea-Bissau		1.2	3.9	2.1		1	1	1	4	2045	.
11 Tanzania		3.2	3.4	3.5		21	27	37	123	2035	2.0
12 Burundi		1.4	2.2	3.0		5	5	7	24	2035	1.9
13 Uganda		3.6	3.2	3.3		15	18	26	84	2035	2.0
14 Togo		3.8	2.8	3.3		3	4	5	16	2035	2.0
15 Central African Rep.		1.6	2.3	2.8		3	3	4	12	2035	1.8
16 Madagascar		2.4	2.8	3.1		10	12	16	48	2035	1.9
17 Benin		2.6	2.8	3.2		4	5	6	20	2035	2.0
18 Rwanda		3.1	3.3	3.6		6	7	10	40	2040	2.0
19 Kenya		3.8	4.0	3.9		20	23	33	111	2030	2.1
20 Sierra Leone		1.7	2.1	2.4		4	4	5	17	2045	1.8
21 Guinea		1.8	2.0	2.1		6	7	8	24	2045	1.8
22 Ghana		2.2	2.6	3.5		12	15	20	54	2030	1.9
23 Sudan		3.0	2.9	2.9		21	25	34	101	2035	1.9
24 Senegal		2.4	2.8	2.9		6	8	10	30	2035	1.9
25 Mozambique		2.3	2.6	3.0		13	16	21	67	2035	1.9
Middle-income oil importers	u	3.3	3.5	3.4							
	e	3.0	3.2	3.3	t	32	40	54			
26 Mauritania		2.3	2.1	2.7		2	2	3	8	2035	1.8
27 Liberia		2.8	3.3	3.2		2	3	4	11	2035	1.9
28 Zambia		3.0	3.2	3.4		6	8	11	35	2035	1.9
29 Lesotho		2.1	2.4	2.6		1	2	2	6	2030	1.8
30 Cote d'Ivoire		4.6	4.5	3.7		10	13	17	46	2035	2.1
31 Zimbabwe		3.4	3.2	3.4		8	10	13	33	2025	2.0
32 Swaziland		3.2	3.4	3.3		1	1	1	3	2030	.
33 Botswana		3.3	4.4	3.4		1	1	2	5	2025	2.0
34 Mauritius		2.0	1.4	1.5		1	1	1	2	2010	1.7
Middle-income oil exporters	u	2.5	2.8	3.3							
	e	2.4	3.1	3.3	t	118	144	190			
35 Nigeria		2.5	2.8	3.4		96	118	163	328	2035	2.0
36 Cameroon		2.4	3.1	3.3		10	12	17	51	2030	1.9
37 Congo, People's Rep.		2.6	3.1	3.7		2	2	3	9	2025	1.9
38 Gabon		0.2	1.5	2.6		1	1	1	4	2035	.
39 Angola		2.1	3.1	2.7		9	10	13	43	2040	.
Sub-Saharan Africa	u	2.7	2.9	3.2							
	e	2.4	2.8	3.1	t	609	696	670			
Francophone countries	u	2.4	2.6	3.0							
	e	2.6	3.0	3.2	t	121	144	194			
Anglophone countries	u	2.7	3.0	3.3							
	e	2.7	3.1	3.2	t	218	267	367			
Other	u	2.6	2.7	2.8							
	e	2.8	2.1	2.6	t	70	82	110			

Notes: For data comparability and coverage, see the technical notes.

Table 4. School-age population growth and projections

	Average annual growth of primary and secondary school-age children			School age population						As a percent of total population	
				Primary (millions)			Secondary (millions)				
	1960-70	1970-80	1980-2000	1984	1990	2000	1984	1990	2000	1984	2000
	u	o	t	u	o	t	u	o	t	u	o
Low-income economies	u 2.8	o 2.9	t 3.2	u 49.6	o 54.4	t 75.7	u 34.0	o 42.4	t 58.1	u 31.2	o 31.9
Low-income semi-arid	u 2.9	o 2.4	t 2.8	u 9.0	o 9.9	t 8.1	u 4.3	o 5.0	t 6.7	u 29.9	o 30.9
1 Mali	2.7	3.0	2.7	1.3	1.9	2.0	1.1	1.2	1.6	31.6	31.9
2 Guinea Bissau	2.2	2.4	2.1	1.1	1.2	1.5	1.0	1.1	1.4	31.9	31.9
3 Niger	3.0	2.7	3.5	1.0	1.3	1.8	0.9	1.1	1.7	30.9	32.7
4 Senegal, The	2.5	2.9	3.0	0.1	0.1	0.2	0.1	0.1	0.1	27.1	28.4
5 Somalia	4.7	1.4	3.4	0.9	1.1	1.5	0.5	0.6	0.8	25.4	27.2
6 Chad	2.3	1.9	2.6	0.7	0.8	1.2	0.7	0.8	1.1	29.8	30.8
Low-income other	u 2.8	o 3.0	t 3.3	u 40.6	o 48.5	t 67.6	u 30.5	o 37.4	t 51.4	u 31.3	o 31.6
7 Ethiopia	2.0	2.9	2.8	6.8	7.6	11.1	3.9	6.6	8.1	29.3	29.4
8 Zaire	2.0	2.1	3.1	3.1	6.0	8.0	4.0	4.9	6.7	30.4	29.5
9 Malawi	2.8	2.9	3.3	1.5	1.8	2.5	0.6	0.7	1.0	31.0	31.1
10 Guinea-Bissau	2.8	2.8	1.9	0.1	0.2	0.2	0.1	0.1	0.1	26.7	26.0
11 Tanzania	3.4	3.5	3.8	4.2	5.0	7.5	2.7	3.5	5.0	31.8	33.9
12 Burundi	1.7	2.5	3.0	0.7	0.9	1.3	0.7	0.8	1.2	31.1	33.1
13 Uganda	4.3	3.5	3.6	3.0	3.0	3.3	2.0	2.5	3.6	33.4	36.2
14 Togo	3.2	2.7	3.5	0.5	0.6	0.9	0.5	0.6	0.8	33.1	34.6
15 Central African Rep.	1.7	3.2	2.6	0.4	0.5	0.7	0.4	0.4	0.6	32.0	32.1
16 Madagascar	2.8	2.7	3.1	1.7	2.0	2.6	1.5	1.8	2.6	32.8	32.2
17 Benin	2.9	2.9	3.0	0.7	0.9	1.2	0.6	0.8	1.1	34.4	35.4
18 Rwanda	3.5	3.9	3.5	1.4	1.5	2.3	0.7	0.8	1.3	37.2	34.9
19 Kenya	4.1	3.8	4.3	4.5	6.0	8.1	2.7	3.6	5.7	36.4	37.7
20 Sierra Leone	1.8	1.3	2.6	0.7	0.8	1.0	0.5	0.7	0.8	33.0	34.1
21 Guinea	1.4	1.7	2.3	0.9	1.0	1.3	0.7	0.8	1.1	27.2	27.8
22 Ghana	2.6	2.5	3.1	2.1	2.6	3.3	1.9	2.4	3.3	33.1	29.7
23 Sudan	2.2	3.2	3.0	3.5	4.1	5.5	2.7	3.3	4.4	28.0	29.7
24 Senegal	2.6	2.5	3.1	1.1	1.2	1.7	1.0	1.2	1.6	31.6	32.6
25 Mozambique	2.5	4.6	3.0	1.9	2.2	3.1	1.6	1.9	2.6	28.4	28.2
Middle-income oil exporters	u 3.3	o 3.8	t 3.5	u 5.9	o 7.3	t 10.3	u 4.5	o 5.5	t 8.0	u 31.9	o 33.0
26 Mauritania	2.7	2.2	2.8	0.3	0.4	0.5	0.2	0.3	0.3	31.2	33.1
27 Liberia	2.9	2.3	3.0	0.3	0.4	0.6	0.3	0.3	0.5	27.6	32.4
28 Zambia	3.0	3.6	3.5	1.3	1.6	2.2	0.7	0.9	1.3	30.6	31.4
29 Lesotho	2.6	2.4	3.0	0.3	0.3	0.4	0.2	0.2	0.3	27.3	29.9
30 Cote d'Ivoire	3.3	3.6	3.8	1.7	2.1	2.8	1.5	1.9	2.7	31.6	31.9
31 Zimbabwe	4.0	3.8	3.7	1.6	2.0	3.0	1.3	1.6	2.4	33.8	37.1
32 Swaziland	3.6	3.5	3.6	0.1	0.2	0.2	0.1	0.1	0.2	31.4	32.0
33 Botswana	3.2	4.2	3.6	0.2	0.3	0.4	0.1	0.2	0.2	33.0	33.5
34 Mauritius	2.6	.0	0.3	0.1	0.1	0.2	0.2	0.2	0.2	29.0	24.8
Middle-income oil importers	u 2.5	o 2.0	t 3.5	u 20.2	o 24.7	t 35.0	u 18.3	o 22.8	t 32.5	u 32.8	o 34.2
35 Nigeria	2.6	2.7	3.8	17.0	20.7	29.2	13.2	18.9	27.0	33.3	34.5
36 Cameroon	2.8	3.0	4.1	1.6	2.1	3.0	1.4	1.8	2.8	30.3	34.8
37 Congo, People's Rep.	2.6	4.0	4.0	0.3	0.4	0.6	0.3	0.4	0.6	33.9	35.3
38 Gabon	1.0	2.2	3.1	0.1	0.1	0.2	0.1	0.1	0.2	27.5	31.5
39 Angola	2.3	2.7	2.9	1.2	1.4	1.9	1.3	1.6	2.1	30.1	30.8
Sub-Saharan Africa	u 2.8	o 2.9	t 3.3	u 71.7	o 86.4	t 120.9	u 57.6	o 70.7	t 98.6	u 31.7	o 32.4
Francophone countries	u 2.4	o 2.7	t 3.2	u 20.4	o 24.3	t 33.6	u 17.4	o 20.9	t 29.1	u 31.3	o 31.8
Anglophone countries	u 2.9	o 3.0	t 3.5	u 49.7	o 69.6	t 89.6	u 31.2	o 39.5	t 58.9	u 31.6	o 32.2
Other	u 2.8	o 3.0	t 2.9	u 10.9	o 12.4	t 17.7	u 9.0	o 10.9	t 13.7	u 28.9	o 28.6

Notes: For data comparability and coverage, see the technical notes.

Table 5. Demography and fertility

	Crude birth rate per thousand population		Crude death rate per thousand population		Percentage change 1965-69		Total fertility rate		
	1965	1969	1965	1969	1965-69	1965-69	1969	2000	
Low-income economies	a	48	47	22	18	-1.3	-18.3	6.6	3.3
	b	48	47	24	19	0.6	-24.0	6.3	3.6
Low-income semi-arid	a	47	48	26	20	1.7	-21.2	6.3	6.0
	b	48	49	27	21	2.3	-21.8	6.3	6.0
1 Mali		50	48	27	20	-5.3	-26.7	6.9	3.9
2 Burkina Faso		46	47	24	21	2.2	-14.6	6.3	6.0
3 Niger		48	51	29	22	6.1	-26.0	7.0	6.4
4 Senegal, The		47	49	28	22	2.8	-19.9	6.3	3.3
5 Somalia		50	49	26	20	-1.4	-23.7	6.8	6.2
6 Chad		48	43	26	21	6.7	-19.6	3.6	3.3
Low-income other	a	48	47	22	18	-2.1	-17.4	6.6	3.3
	b	48	47	23	17	-0.4	-28.0	6.3	3.6
7 Ethiopia		44	41	19	24	-5.7	26.3	6.1	3.3
8 Zaire		48	45	21	13	-3.8	-28.3	6.1	4.9
9 Malawi		36	34	27	22	-4.3	-17.0	7.6	6.4
10 Guinea-Bissau		46	46	30	26	0.9	-11.1	6.0	3.6
11 Tanzania		49	50	22	16	2.6	-30.0	7.0	3.7
12 Burundi		47	47	24	19	-0.4	-24.0	6.3	3.9
13 Uganda		49	50	19	16	2.1	-18.6	6.9	3.7
14 Togo		50	49	23	16	-2.0	-30.3	6.3	3.4
15 Central African Rep.		34	42	24	17	-23.0	-32.0	3.6	3.4
16 Madagascar		44	47	21	13	6.6	-29.2	6.3	3.0
17 Benin		49	49	25	17	0.6	-29.3	6.3	3.4
18 Rwanda		32	32	17	19	0.8	8.4	8.0	6.7
19 Kenya		51	53	21	13	9.8	-37.4	7.9	3.6
20 Sierra Leone		48	49	33	26	1.9	-29.3	6.3	6.0
21 Guinea		46	47	30	26	1.3	-12.0	6.0	3.6
22 Ghana		50	46	20	14	-8.6	-29.3	6.4	4.7
23 Sudan		47	45	24	17	-3.6	-28.0	6.6	3.3
24 Senegal		47	46	23	19	-2.0	-17.9	6.6	3.3
25 Mozambique		49	45	27	18	-7.8	-32.2	6.3	3.7
Middle-income oil importers	a	48	45	19	14	-3.4	-26.3	6.6	4.8
	b	46	46	20	14	-2.1	-26.3	6.3	4.8
26 Mauritania		44	45	25	19	1.3	-23.1	6.2	3.9
27 Liberia		46	49	22	17	6.1	-23.2	6.9	3.7
28 Zambia		49	48	20	15	-2.1	-26.3	6.8	3.6
29 Lesotho		42	41	18	14	-4.3	-19.7	3.8	4.7
30 Cote d'Ivoire		44	45	22	14	2.4	-37.3	6.3	4.8
31 Zimbabwe		35	47	17	12	-14.2	-31.0	6.3	4.0
32 Greenland		30	49	21	14	-1.4	-34.6	6.9	3.0
33 Botswana		33	46	19	12	-13.3	-36.3	6.7	4.7
34 Mauritius		37	21	9	7	-43.3	-21.9	2.7	2.3
Middle-income oil exporters	a	50	49	23	17	-1.6	-27.9	6.8	3.7
	b	41	47	22	16	9.3	-28.1	6.4	3.6
35 Nigeria		51	50	23	16	-3.4	-28.1	6.9	3.7
36 Cameroon		40	47	20	14	18.3	-23.3	6.7	3.6
37 Congo, People's Rep.		41	45	18	12	9.3	-31.4	6.2	3.6
38 Gabon		32	38	22	16	19.4	-26.6	4.9	3.4
39 Angola		49	47	29	22	-3.9	-26.0	6.4	3.9
Sub-Saharan Africa	a	48	47	23	17	-1.3	-23.3	6.6	3.3
	b	48	47	23	17	-0.4	-26.3	6.3	3.6
Francophone countries	a	47	47	23	17	1.3	-23.9	6.4	3.4
	b	49	48	24	19	1.0	-23.2	6.3	3.6
	c	50	49	21	16	-1.8	-23.4	6.9	3.3
Anglophone countries	a	47	47	22	16	-2.8	-23.6	6.4	3.3
	b	46	43	23	22	-3.3	-1.3	6.2	3.6
Other	a	50	50	27	22	6.1	-17.9	6.9	3.9

Notes: For data comparability and coverage, see the technical notes.

Table 6. Urbanization

	Urban population				Percentage of urban population				Number of cities of over 500,000 persons			
	As a percentage of total population		Average annual growth rate (percent)		In largest city		In cities of over 500,000 persons					
	1965a	1984a	1965-73	1973-84	1960	1980	1960	1980	1960	1980		
Low-income economies	u	12	21	6.2	6.1	31	41	3	36	t	1	14
	e	11	21	6.0	6.1	37	38	0	31			
Low-income semi-arid	u	11	20	6.2	5.5	.	33	0	0	t	0	0
	e	11	20	5.6	8.7	.	34	0	0			
1 Mali		13	19	5.4	4.5	32	24	0	0	0	0	0
2 Burkina Faso		6	11	6.5	4.8	.	41	0	0	0	0	0
3 Niger		7	14	7.0	7.1	.	31	0	0	0	0	0
4 Gambia, The		14	31	4.2	10.2	.	.	.	.	.	.	.
5 Somalia		20	33	6.4	5.4	.	34	0	0	0	0	0
6 Chad		9	21	6.9	6.3	.	39	0	0	0	0	0
Low-income other	u	12	21	6.3	6.2	31	42	3	42	t	1	14
	e	11	21	5.9	6.1	37	47	0	38			
7 Ethiopia		8	15	7.4	6.1	30	37	0	37	0	1	1
8 Zaïre		19	39	5.9	7.1	14	28	14	38	1	2	2
9 Malawi		5	12	8.2	7.3	.	19	0	0	0	0	0
10 Guinea-Bissau		16	26	4.1	6.8	.	.	.	.	.	.	.
11 Tanzania		6	14	8.1	8.6	34	50	0	50	0	1	1
12 Burundi		2	3	1.4	3.3	.	.	0	0	0	0	0
13 Uganda		6	7	8.3	-0.1	38	52	0	52	0	1	1
14 Togo		11	23	6.4	6.5	.	60	0	0	0	0	0
15 Central African Rep.		27	45	4.4	4.6	40	36	0	0	0	0	0
16 Madagascar		12	21	5.3	5.5	44	36	0	36	0	1	1
17 Benin		11	15	4.5	5.0	.	63	0	63	0	1	1
18 Rwanda		3	5	6.0	6.6	.	.	0	0	0	0	0
19 Kenya		9	18	7.3	7.9	40	57	0	57	0	1	1
20 Sierra Leone		15	24	5.0	3.5	37	47	0	0	0	0	0
21 Guinea		12	27	5.0	6.2	37	60	0	60	0	1	1
22 Ghana		26	39	4.5	5.3	25	35	0	48	0	2	2
23 Sudan		13	21	6.3	5.5	30	31	0	31	0	1	1
24 Senegal		27	35	4.2	3.8	53	65	0	65	0	1	1
25 Mozambique		5	16	8.2	10.2	75	83	0	83	0	1	1
Middle-income oil exporters	u	19	38	7.5	6.9	.	38	0	31	t	0	3
	e	14	27	7.6	6.4	.	37	0	17			
26 Mauritania		7	26	16.0	5.1	.	39	0	0	0	0	0
27 Liberia		23	39	5.3	6.0	.	.	0	0	0	0	0
28 Zambia		24	48	7.6	6.4	.	35	0	35	0	1	1
29 Lesotho		2	13	7.8	20.1	.	.	0	0	0	0	0
30 Côte d'Ivoire		23	46	8.2	8.3	27	34	0	34	0	1	1
31 Zimbabwe		14	27	6.8	6.1	40	50	0	50	0	1	1
32 Swaziland		6	19	5.8	12.9	.	.	.	.	.	.	.
33 Botswana		4	24	19.0	11.3	.	.	.	.	.	.	.
34 Mauritius		37	56	4.6	3.4	.	.	.	.	.	.	.
Middle-income oil importers	u	15	31	4.9	5.2	17	19	19	52	t	2	10
	e	16	40	4.7	5.4	26	21	0	21			
35 Nigeria		15	30	4.7	5.2	13	17	22	58	2	9	9
36 Cameroon		16	41	7.3	8.2	26	21	0	21	0	1	1
37 Congo, People's Rep.		35	56	4.4	5.4	77	56	0	0	0	0	0
38 Gabon		21	40	4.0	4.6	.	.	.	.	.	.	.
39 Angola		13	24	5.8	6.6	.	.	.	.	.	.	.
Sub-Saharan Africa	u	13	25	6.0	5.9	28	36	0	47	t	3	27
	e	13	24	6.0	6.1	37	37	0	26			
Francophone countries	u	15	28	6.0	7.2	30	36	4	31	t	1	8
	e	12	25	5.7	5.5	37	38	0	0			
Anglophone countries	u	13	25	5.8	7.5	22	28	11	69	t	2	17
	e	14	24	6.6	6.3	36	41	0	42			
Other	u	9	18	7.0	6.4	37	46	0	33	t	0	2
	e	13	24	6.4	6.6	.	37	0	37			

Notes: For data comparability and coverage, see the technical notes.

Table 7. Labor force

	Percentage of population of working age		Percentage of labor force in:						Average annual growth of labor force			
			Agriculture		Industry		Services					
	1965	1984	1965	1980 a/	1965	1980 a/	1965	1980 a/	1965-73	1973-84	1980-2000	
Low-income economies	u	53	51	84	79	7	8	9	13	2.2	2.2	2.8
	a	53	52	89	82	5	7	10	16	2.5	2.3	2.9
Low-income semi-arid	u	53	51	91	85	4	4	5	11	2.2	2.0	2.4
	a	53	52	90	85	3	5	7	11	2.0	2.5	2.4
1 Mali		53	50	90	86	1	2	8	13	2.2	1.9	2.4
2 Burkina Faso		53	52	89	87	3	4	7	9	1.6	1.4	1.7
3 Niger		51	51	95	91	1	2	4	7	2.1	2.8	3.0
4 Gambia, The		53	55	88	84	5	7	7	9	1.8	3.4	2.1
5 Somalia		49	52	81	74	6	8	13	16	3.8	2.6	2.6
6 Chad		55	56	92	83	3	5	5	12	1.6	2.3	2.3
Low-income other	u	52	51	83	78	7	8	10	14	2.2	2.2	3.0
	a	53	51	87	81	5	7	8	12	2.0	2.1	2.8
7 Ethiopia		52	51	86	80	5	8	8	12	2.2	2.2	2.5
8 Zaïre		52	51	82	72	9	13	9	16	1.9	2.3	2.8
9 Malawi		51	48	92	83	3	7	5	9	2.3	2.5	2.7
10 Guinea-Bissau			52	89	82	5	4	6	14			
11 Tanzania		53	50	92	86	3	5	6	10	2.6	2.6	3.2
12 Burundi		53	52	94	93	2	2	4	5	1.2	1.7	2.5
13 Uganda		53	49	91	86	3	4	6	10	3.1	2.2	3.2
14 Togo		52	50	78	73	8	10	13	17	3.2	2.0	2.9
15 Central African Rep.		57	55	89	72	3	6	8	21	1.1	1.6	2.4
16 Madagascar		54	50		80		3		9	1.9	2.0	2.9
17 Benin		52	50	83	70	5	7	12	23	2.1	2.0	2.6
18 Rwanda		51	51	94	93	2	3	3	4	2.7	2.8	3.1
19 Kenya		48	45	86	81	5	7	9	12	3.3	2.8	3.3
20 Sierra Leone		54	54	79	70	11	14	11	16	1.0	1.8	1.9
21 Guinea		55	53	87	81	6	9	6	10	1.2	1.2	1.8
22 Ghana		52	48	81	56	15	18	24	26	1.4	1.5	3.5
23 Sudan		53	52	82	71	5	7	13	22	2.8	2.4	2.8
24 Senegal		53	52	85	81	5	6	11	13	1.7	2.2	2.4
25 Mozambique		55	51	87	85	5	7	7	8	1.8	1.6	2.4
Middle-income oil importers	u	53	46	77	52	8	7	15	21	3.0	2.5	2.9
	a	52	52	81	70	5	9	11	17	2.3	2.3	2.7
26 Mauritania		52	53	90	69	3	9	7	22	1.9	2.3	2.1
27 Liberia		51	52	79	74	10	9	11	16	2.1	3.6	2.9
28 Jamaica		51	49	79	73	8	10	13	17	2.3	2.1	3.1
29 Lesotho		56	53	92	86	3	4	6	10	1.7	1.8	2.3
30 Côte d'Ivoire		54	53	81	65	5	8	14	27	4.2	3.9	3.3
31 Zimbabwe		51	45	79	53 a	8	13 a	13	34 a	2.7	1.5	3.4
32 Swaziland		53	49	85	74	5	9	10	17	2.6	2.2	2.7
33 Botswana		50	48	89	79	4	13	7	17	2.2	4.2	2.9
34 Mauritius		52	62	37	28	25	24	38	48	2.8	2.3	2.1
Middle-income oil exporters	u	53	50	68	69	12	11	20	20	1.7	2.0	3.2
	a	55	51	79	70	8	11	13	20	1.7	1.9	3.0
35 Nigeria		51	49	72	68	10	12	18	20	1.7	2.0	3.1
36 Cameroon		50	50	87	70	4	8	9	22	1.9	1.8	3.0
37 Congo, People's Rep.		55	51	66	62	11	12	23	26	1.9	1.9	3.7
38 Gabon		61	58	83	75	8	11	9	14	-0.2	0.3	2.0
39 Angola		55	52	79	74	8	10	13	17	1.5	2.6	2.7
Sub-Saharan Africa	u	53	51	81	75	7	9	12	16	2.1	2.2	2.8
	a	53	51	86	75	5	8	9	16	2.0	2.2	2.7
Francophone countries	u	54	53	85	78	6	8	9	15	2.0	2.1	2.8
	a	53	52	87	78	4	7	8	14	1.9	2.0	2.6
Anglophone countries	u	52	49	74	70	9	10	16	18	2.1	2.4	3.1
	a	52	49	84	74	5	9	11	17	2.3	2.3	2.9
Other	u	51	51	82	80	7	8	11	12	2.3	2.2	2.5
	a	54	52	86	80	5	8	8	14	2.0	2.4	2.6

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for years other than those specified.

Table 8. Growth of production

	Average annual growth rate (percent)									
	GDP		Agriculture		Industry		Manufacturing		Services b/	
	1965-73	1973-84 a/	1965-73	1973-84 a/	1965-73	1973-84 a/	1965-73	1973-84 a/	1965-73	1973-84 a/
Low-income economies	u	4.0	1.6	2.0	.	6.6	.	.	4.1	.
	e	3.6	2.6	2.6	1.4	6.1	2.6	7.6	-0.1	4.5
Low-income east-afri	u	0.0	3.9	.	.	.	.	.	.	.
	e	2.9	2.9	0.9	1.6	5.1	5.2	.	.	4.5
1 Mali		3.1	6.1 *	0.9	3.0 *	3.1	6.6 *	.	.	4.7
2 Burkina Faso		2.4	2.9	.	1.3	.	5.2	.	.	3.2
3 Niger		-0.8	5.2 *	-2.9	1.6 *	13.2	10.9 *	.	.	-1.9
4 Senegal, The		4.5	2.0	4.5	.	4.4	.	.	.	4.5
5 Somalia		3.5	2.3	.	.	.	.	.	.	.
6 Chad		0.5	.	.	.	.	.	.	.	.
Low-income other	u	4.3	1.5	3.2	.	6.3	.	.	4.3	.
	e	3.0	2.3	2.9	1.2	6.2	2.6	7.6	-0.1	5.0
7 Ethiopia		4.1	2.3 *	2.1	1.2 *	6.1	2.6 *	0.8	3.5 *	6.7
8 Zaire		3.9	-1.0 *	.	1.4 *	.	-2.0 *	.	-5.0 *	-1.1 *
9 Malawi		5.7	3.3	.	2.5	.	3.3	.	.	4.0
10 Guinea-Bissau		.	2.1 *	.	-3.1 *	.	1.3 *	.	.	12.1 *
11 Tanzania		5.0	2.6 *	3.1	.	6.9	.	0.7	.	6.2
12 Burundi		6.8	3.6 *	4.7	2.3 *	10.4	0.3 *	.	.	3.0
13 Uganda		3.6	-1.3 *	3.6	-0.7 *	3.0	-0.8 *	.	.	3.8
14 Togo		5.3	2.3 *	2.6	1.1 *	6.2	2.6 *	.	.	7.3
15 Central African Rep.		2.7	0.7	2.1	1.1	7.1	1.2	.	.	1.6
16 Madagascar		3.5	0.0	.	0.3	.	-3.0	.	.	0.9
17 Benin		2.2	4.6	.	2.7	.	7.9	.	.	5.1
18 Rwanda		6.3	5.4	.	.	.	.	.	.	.
19 Kenya		7.9	4.4	6.2	3.5	12.4	4.8	12.4	6.0	7.6
20 Sierra Leone		3.7	1.8	1.5	2.0	1.9	-2.5	3.3	1.8	7.1
21 Guinea		3.0	3.1	.	2.4	.	5.7	.	-2.0	2.3
22 Ghana		3.4	-0.9	4.5	0.2	4.3	-6.9	6.5	-6.9	1.1
23 Sudan		0.2	5.5	0.3	2.7	1.0	6.4	.	10.1	0.5
24 Senegal		1.5	2.6	0.2	-0.2	3.5	6.0	.	.	1.5
25 Mozambique		7.4	-2.2 *	6.5	-2.4 *	11.3	-6.5 *	1.8	-6.0 *	9.2
Middle-income oil importers	u	5.7	2.8	.	.	.	.	.	3.3	.
	e	5.5	3.6	6.4	1.1	6.3	0.9	.	3.3	7.6
26 Mauritania		2.6	2.3	-2.1	2.3	4.3	0.9	.	.	7.6
27 Liberia		5.5	0.2 *	6.5	2.0 *	6.2	-1.5 *	13.2	0.5 *	3.8
28 Zambia		2.4	0.4	2.0	0.9	2.7	-0.1	9.8	0.8	2.3
29 Lesotho		3.9	5.0	.	.	.	.	.	.	.
30 Cote d'Ivoire		8.6	6.2	.	.	.	.	.	.	.
31 Zimbabwe		9.4	1.7	.	1.1	.	0.4	.	2.3	3.0
32 Swaziland		7.6	3.7 *	8.0	4.9 *	3.1	3.6 *	.	5.7 *	12.2
33 Botswana		14.0	10.7	6.4	-4.6	30.2	13.6	.	0.2	10.6
34 Mauritius		2.3	3.6	.	-3.1	.	4.4	.	4.3	6.5
Middle-income oil exporters	u	6.3	6.8	2.4	.	19.0	.	13.2	.	7.5
	e	6.0	1.5	3.5	-0.3	16.5	6.5	11.5	9.9	5.2
35 Nigeria		9.7	1.3 *	2.8	-0.9 *	19.7	0.3 *	13.0	10.7	0.8
36 Cameroon		6.2	7.2 *	4.7	1.8 *	4.7	15.2 *	7.5	9.9	3.6
37 Congo, People's Rep.		6.8	8.1	4.1	0.4	9.3	12.7	.	.	6.7
38 Gabon		7.4	1.5	.	.	.	.	.	.	.
39 Angola		3.6	-3.7 *	0.2	-3.5 *	20.2	-3.0 *	11.3	-0.5	2.7
Sub-Saharan Africa	u	6.4	1.3	2.6	.	15.0	.	.	.	5.9
	e	3.9	2.6	3.0	1.2	6.2	2.6	8.8	2.3	4.6
Francophone countries	u	6.4	1.3	2.6	.	15.0	.	.	.	5.9
	e	3.3	3.1	2.1	1.5	6.2	3.5	.	-2.0	3.6
Anglophone countries	u	7.0	1.1	3.0	.	16.0	.	.	.	6.7
	e	6.8	2.3	4.1	1.1	4.4	0.4	9.0	4.3	5.4
Other	u	4.6	-2.4	1.5	.	14.7	.	6.8	.	5.2
	e	3.9	2.1	2.1	-2.0	11.3	-1.9	8.8	-6.0	6.7

Notes for data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for 1973-83, not 1973-84.
 b. Services include the unallocated share of GDP.

Table 9. Central government expenditure

	Percentage of total expenditure												Total expenditure (percentage of GDP)		Overall surplus/deficit (percentage of GDP)		
	Defense		Education		Health		Housing		Economic services		Other		1972	1983 a/	1972	1983 a/	
	1972	1983 a/	1972	1983 a/	1972	1983 a/	1972	1983 a/	1972	1983 a/	1972	1983 a/					
Low-income economies	13.2	10.3	15.3	15.9	5.2	4.5	5.7	5.0	20.9	21.5	39.5	42.0	21.0	20.1	-3.9	-4.4	
	11.7	7.9	15.6	16.3	5.7	5.7	3.3	2.6	21.9	19.2	36.7	41.6	19.5	26.6	-2.9	-4.6	
Low-income non-arid	18.7	18.3	12.6	21.2	6.3	5.9	5.3	11.2	18.5	15.7	38.6	27.8	14.0	40.5	-0.5	-8.5	
	23.3	.	14.8	.	7.2	.	1.9	.	21.6	.	37.6	.	13.5	.	0.3	.	
1 Mali	.	7.9	.	10.1	.	2.9	.	4.6	.	7.1	.	47.8	.	68.9	.	-18.4	
2 Burkina Faso	11.5	20.7	20.6	19.6	8.2	6.8	6.6	8.0	15.5	16.3	37.6	28.6	16.9	15.6	0.3	0.9	
3 Niger	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 Gambia, The	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5 Senegal	23.3	.	5.5	.	7.2	.	1.9	.	21.6	.	40.5	.	13.5	.	0.6	.	
6 Chad	24.6	.	14.8	.	4.4	.	1.7	.	21.8	.	32.7	.	18.1	.	-3.2	.	
Low-income other	13.0	9.8	15.6	15.6	5.1	4.5	5.8	4.6	21.0	21.9	39.5	43.8	21.5	18.8	-4.2	-4.2	
	11.1	7.9	15.8	16.3	5.7	5.7	3.9	2.3	22.9	19.2	36.6	41.6	19.8	26.6	-3.9	-4.6	
7 Ethiopia	14.3	.	14.4	.	5.7	.	6.4	.	22.9	.	38.3	.	13.7	.	-1.4	.	
8 Zaïre	11.1	7.9	15.2	16.3	2.3	3.2	2.8	0.4	13.3	16.8	56.1	55.4	38.6	27.5	-7.5	-3.0	
9 Malawi	3.1	6.2	15.0	15.4	5.5	6.8	5.8	1.3	33.1	35.2	36.7	37.1	22.1	32.0	-6.2	-7.7	
10 Guinea-Bissau	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 Tanzania	11.9	.	17.3	.	7.2	.	2.1	.	39.0	.	22.6	.	19.7	.	-5.0	.	
12 Burundi	10.3	.	23.4	.	6.0	.	2.7	.	33.9	.	23.8	.	19.9	.	.	.	
13 Uganda	23.1	17.0	15.3	12.9	5.3	4.6	7.3	2.6	12.4	9.5	36.6	33.4	21.8	4.5	-8.1	-1.2	
14 Togo	.	6.8	.	19.6	.	5.7	.	8.2	.	18.2	.	41.6	.	34.1	.	-2.1	
15 Central African Rep.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16 Madagascar	3.6	.	9.1	.	4.2	.	9.9	.	60.5	.	32.7	.	20.8	.	-2.5	.	
17 Benin	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18 Rwanda	25.6	.	22.2	.	5.7	.	2.6	.	22.0	.	21.9	.	11.7	.	-2.8	.	
19 Kenya	6.0	13.8	21.9	20.6	7.9	7.0	5.9	0.7	30.1	24.6	30.2	33.3	21.0	26.6	-3.9	-5.1	
20 Sierra Leone	.	4.2	.	14.8	.	6.2	.	1.5	.	32.1	.	41.2	.	21.2	.	-13.8	
21 Guinea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22 Ghana	7.9	6.2	20.1	18.7	6.3	5.8	4.1	6.8	15.1	19.2	46.6	43.5	19.5	7.8	-5.8	-2.6	
23 Sudan	24.1	9.5	9.3	6.1	5.4	1.3	1.4	2.3	15.8	25.5	44.1	57.3	19.2	16.9	-8.8	-6.6	
24 Senegal	.	9.7	.	17.6	.	4.7	.	8.6	.	19.2	.	40.3	.	17.4	26.8	-8.8	-8.0
25 Ruzuzique	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Middle-income oil exporters	.	14.5	18.1	18.6	7.6	7.1	5.9	7.9	25.4	23.8	43.0	38.1	29.6	36.2	-11.1	-9.2	
	.	7.5	16.3	16.6	7.7	7.3	12.3	9.5	25.6	25.7	42.5	41.2	25.2	35.6	-7.5	-8.1	
26 Mauritania	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27 Liberia	.	7.9	.	15.8	.	7.3	.	2.7	.	28.6	.	37.7	.	34.9	.	-10.6	
28 Zambia	.	.	19.0	15.2	7.4	8.4	1.3	1.8	26.7	23.9	45.7	56.7	34.0	41.5	-13.8	-19.8	
29 Lesotho	.	.	19.5	17.4	8.0	7.2	6.5	1.3	24.5	29.4	41.5	44.7	16.6	27.6	-0.9	-2.8	
30 Côte d'Ivoire	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31 Zimbabwe	.	18.3	.	21.5	.	6.1	.	7.8	.	20.9	.	25.4	.	36.3	.	-6.9	
32 Swaziland	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33 Botswana	.	7.0	10.0	19.4	6.0	5.6	21.7	9.1	28.0	27.4	34.5	31.5	33.7	44.7	-23.8	11.5	
34 Mauritius	0.8	0.9	13.5	15.6	10.3	7.8	18.0	21.1	13.9	9.2	43.4	45.3	16.3	28.7	-1.2	-9.3	
Middle-income oil importers	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
35 Nigeria	40.2	.	4.5	.	3.6	.	6.8	.	19.6	.	31.4	.	16.2	.	-0.9	.	
36 Cameroon	.	9.6	.	13.2	.	3.7	.	8.5	.	26.0	.	39.0	.	21.8	.	1.3	
37 Congo, People's Rep.	.	.	.	.	.	.	.	.	.	.	.	.	.	43.9	.	-3.0
38 Gabon	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
39 Angola	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sub-Saharan Africa	20.2	11.4	13.2	16.6	5.1	5.4	5.2	6.6	-21.2	22.8	35.1	37.2	17.8	25.0	-3.4	-4.8	
	11.7	7.9	15.3	16.1	6.0	6.0	3.9	3.7	22.0	22.2	36.7	41.6	19.4	27.6	-2.5	-4.6	
Francophone countries	10.7	10.5	14.7	16.4	3.2	4.0	4.5	7.3	19.4	21.3	47.5	60.5	26.9	28.6	-4.9	-2.3	
	11.3	8.8	17.9	17.0	5.1	4.2	2.7	8.1	21.9	17.5	32.7	41.0	18.1	27.5	-2.5	-3.0	
Anglophone countries	28.1	12.0	12.8	16.7	5.6	6.1	5.4	6.2	21.6	23.6	39.5	35.4	16.0	23.2	-1.3	-6.0	
	9.9	7.5	15.8	15.7	6.3	6.5	4.1	2.5	24.5	24.3	36.7	42.3	19.7	28.1	-5.0	-6.0	
Other	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for 1973 or 1982.

Table 10. Disbursements of official development assistance

		Net disbursements of ODA from all sources						Per capita (dollars)	As a percent of GDP	
		billions of dollars								
		1970	1979	1980	1981	1982	1983	1984	1984	1984
Low-income economies	t	3517	4715	5397	5568	5616	5543	5619	u 21.7 26.0	9.0 10.2
Low-income semi-arid	t	851	867	1173	1162	1237	1038	1203	u 38.9 36.2	22.6 17.3
1 Mali		163	193	267	230	210	213	320	43.6	32.0
2 Burkina Faso		159	190	212	217	213	184	188	28.7	19.7
3 Niger		157	174	170	193	239	175	162	26.1	14.0
4 Gambia, The		36	37	54	68	48	42	56	77.9	35.1
5 Senegal		212	179	433	374	462	327	363	69.4	.
6 Chad		125	86	33	60	65	95	115	23.6	.
Low-income other	t	2666	3848	4225	4425	4360	4505	4414	u 19.3 22.1	8.2 8.3
7 Ethiopia		140	191	216	250	200	344	363	8.6	7.7
8 Zaire		317	416	428	394	348	317	314	10.6	10.1
9 Malawi		99	142	143	138	121	117	159	23.2	13.8
10 Guinea-Bissau		50	53	60	65	68	64	55	63.3	.
11 Tanzania		424	588	678	702	683	621	559	26.0	14.7
12 Burundi		75	95	117	122	127	142	141	36.7	15.0
13 Uganda		23	46	114	136	133	137	164	10.9	3.3
14 Togo		103	110	91	63	77	112	110	37.3	16.7
15 Central African Rep.		51	84	111	102	90	93	114	45.1	18.8
16 Madagascar		91	138	230	234	251	185	156	15.8	7.6
17 Benin		62	85	91	82	80	87	77	19.7	8.0
18 Rwanda		125	148	155	154	151	151	165	28.2	10.2
19 Kenya		248	351	397	449	485	462	431	22.1	7.5
20 Sierra Leone		40	54	93	61	82	66	61	16.5	6.2
21 Guinea		60	56	90	107	90	68	123	20.8	6.3
22 Ghana		114	169	193	148	142	110	216	17.5	4.4
23 Sudan		318	671	588	681	740	957	616	28.9	8.5
24 Senegal		223	307	262	397	285	322	333	52.2	14.8
25 Mozambique		105	146	169	144	208	211	259	19.3	4.9
Middle-income oil importers	t	819	946	1266	1200	1231	1153	1219	u 37.4 37.1	6.8 9.4
26 Mauritania		238	167	176	231	193	172	168	101.5	24.6
27 Liberia		48	81	98	109	109	118	133	62.6	13.6
28 Zambia		185	277	318	231	309	216	238	37.1	9.4
29 Lesotho		50	64	91	101	90	104	97	65.8	17.6
30 Cote d'Ivoire		131	162	210	124	137	157	128	13.0	2.3
31 Togo		9	13	164	212	216	208	298	36.7	5.8
32 Swaziland		45	50	50	37	28	34	18	24.3	3.7
33 Botswana		69	100	106	97	102	104	103	99.2	11.6
34 Mauritius		44	32	33	58	48	41	36	35.1	3.5
Middle-income oil exporters	t	393	472	501	425	465	426	487	u 4.1 19.0	0.5 2.5
35 Nigeria		43	27	36	41	37	48	33	0.3	0.0
36 Cameroon		178	270	265	199	212	130	188	19.0	2.5
37 Congo, People's Rep.		81	91	92	81	93	109	98	53.9	5.3
38 Gabon		44	37	56	44	62	64	76	93.1	2.5
39 Angola		47	47	53	61	60	76	93	10.9	1.3
Sub-Saharan Africa	t	4729	6133	7145	7192	7311	7122	7325	u 17.9 28.2	4.1 8.3
Francophone countries	t	2383	2817	3059	3632	2944	2776	2976	u 24.7 28.5 14.7	7.9 10.2 2.9
Anglophone countries	t	1793	2701	3155	3267	3370	3323	3216	u 27.5 16.1	8.0 4.2
Other	t	533	615	931	893	998	1023	1134	u 19.3	4.9

Notes: For data comparability and coverage, see the technical notes.

Table 11. External public debt service ratios

	External public debt outstanding and disbursed				Interest payments on external public debt (millions of dollars)		Debt service as a percentage of:			
	Dollars (millions)		As a percentage of GDP		1970	1984	GDP		Exports of goods and services	
	1970	1984	1970	1984			1970	1984	1970	1984 a/
Low-income economies	t 3187	29014	u 17.4	34.4	t 80	793	u 1.3	3.5	5.2	.
			u 14.0	59.7	t		u 1.0	2.2	4.2	11.3
Low-income semi-arid	t 399	3387	u 25.8	.	t 2	45	u 0.6	.	3.3	.
			u 11.9	61.9	t		u 0.3	2.3	3.6	8.0
1 Mali	238	960	88.1	93.9	(.)	7	0.3	1.7	1.4	8.0
2 Burkina Faso	21	407	6.4	42.6	(.)	7	0.6	2.3	6.2	.
3 Niger	32	678	8.7	61.9	1	27	0.6	6.1	3.8	.
4 Senegal, The	.	.	.	.	(.)	.	.	.	.	.
5 Somalia	77	1233	24.4	.	(.)	3	0.3	.	2.1	28.9
6 Chad	32	109	11.9	.	(.)	1	1.0	.	3.9	1.7
Low-income other	t 2788	25627	u 16.7	53.6	t 77	768	u 1.3	3.5	5.4	.
			u 15.2	59.5	t		u 1.2	2.0	4.8	13.2
7 Ethiopia	169	1384	9.3	29.5	6	31	1.2	1.8	11.4	13.5
8 Zaire	311	4084	17.6	132.0	9	210	2.1	11.4	4.6	7.7 *
9 Malawi	122	731	43.2	63.5	3	32	2.1	7.2	7.2	.
10 Guinea-Bissau	.	.	.	.	.	.	.	.	.	.
11 Tanzania	250	2594	19.5	68.0	6	30	1.2	1.9	4.9	.
12 Burundi	7	334	3.1	33.8	(.)	8	0.3	1.9	.	.
13 Uganda	138	675	7.3	13.3	4	32	0.4	1.7	2.7	.
14 Togo	40	659	16.0	100.1	1	37	0.9	10.1	2.9	26.3
15 Central African Rep.	24	224	13.5	37.1	1	6	1.6	2.0	4.8	8.0
16 Madagascar	93	1636	10.8	73.0	2	31	0.8	5.2	3.5	.
17 Benin	61	582	16.0	39.8	(.)	17	0.7	3.9	2.3	.
18 Rwanda	2	244	0.9	15.1	(.)	3	0.1	0.4	1.2	3.3
19 Kenya	319	2633	20.6	45.8	12	144	1.8	6.1	5.4	21.5
20 Sierra Leone	59	342	14.3	34.7	2	4	2.9	1.6	9.9	9.3
21 Guinea	312	1168	47.1	39.5	4	21	2.2	9.3	.	.
22 Ghana	495	1122	21.9	22.9	12	26	1.1	1.7	5.0	13.2
23 Sudan	307	5639	15.2	78.4	13	68	1.7	1.3	10.6	13.6
24 Senegal	100	1535	11.9	68.9	2	53	0.8	4.1	2.8	.
25 Mozambique	.	.	.	.	.	.	.	.	.	.
Middle-income oil exporters	t 1352	11751	u 24.3	67.5	t 51	674	u 2.4	7.1	.	13.4
			u 16.8	56.4	t		u 1.5	5.0	4.5	12.1
26 Mauritania	27	1171	13.9	171.2	(.)	23	1.7	6.2	3.1	12.8
27 Liberia	159	737	49.9	77.4	6	20	5.5	4.3	.	8.6
28 Zambia	623	2779	35.7	109.4	26	63	3.4	4.3	5.9	11.3
29 Lesotho	8	134	7.7	24.3	(.)	4	0.3	3.8	.	3.1
30 Cote d'Ivoire	256	4835	18.7	85.1	11	404	2.8	11.3	6.8	20.9
31 Zimbabwe	233	1446	15.7	28.4	5	119	0.6	5.4	.	20.0
32 Swaziland	.	.	.	.	.	.	.	.	.	.
33 Botswana	15	276	17.9	31.3	(.)	15	0.7	3.8	.	3.8
34 Mauritius	32	334	14.3	33.3	2	25	1.3	7.5	3.0	14.8
Middle-income oil importers	t 753	14949	u 12.1	23.2	t 27	1337	u 0.8	4.4	.	18.5
35 Nigeria	480	11813	6.8	16.3	20	1172	0.6	4.4	4.2	23.4
36 Cameroon	131	1738	12.1	23.2	4	197	0.8	3.0	3.1	8.6
37 Congo, People's Rep.	164	1396	33.9	76.2	3	78	3.3	13.7	.	18.5
38 Gabon	.	.	.	.	.	.	.	.	.	.
39 Angola	.	.	.	.	.	.	.	.	.	.
Sub-Saharan Africa	t 5294	55714	u 15.1	36.3	t 138	2824	u 1.2	6.4	5.1	18.7
			u 15.2	39.5	t		u 1.0	4.1	4.1	12.8
Francophone countries	t 1810	21780	u 19.2	65.5	t 40	1039	u 1.3	6.3	4.3	14.0
			u 13.9	63.4	t		u 0.8	4.7	3.3	8.3
Anglophone countries	t 3238	31317	u 13.7	27.9	t 111	1791	u 1.2	4.0	5.4	21.1
			u 16.8	33.0	t		u 1.3	4.1	5.2	13.2
Other	t 246	2617	u	.	t 7	34	u	.	.	.
			u	.	t		u	.	.	.

Notes: For data comparability and coverage, see the technical notes.

a. Figures with an asterisk are for 1983, not 1984.

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PART C
SUPPLEMENTARY AND SUMMARY TABLES

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Table 1. Selected comparative statistics for countries with population under one-half million people

	Population (millions) a/	GDP/capita (US dollars)	Percent of GNP devoted to education	Percent adult literacy	Percent gross primary enrolment rate	Progression rate from primary to secondary	Percent females in total enrollment
Cape Verde	0.30	\$349	10.6%	36.9%	-	14.7%	48.0%
Comoros	0.40	\$349	5.4% b/	49.0% c/	103.0%	32.1%	40.0%
Djibouti	0.40	\$480 d/	11.5%	10.0% e/	42.0% f/	24.9%	39.4%
Equatorial Guinea	0.40	\$190	-	-	78.1%	14.4%	42.0%
Sao Tome and Principe	0.10	\$708	5.9% b/	-	-	23.2%	47.0%
Seychelles	0.10	\$1,938	5.9%	57.7%	95.0% g/	21.9%	50.7%

Note: General source, African Development Bank, 1988. See the Technical Notes for other, specific sources (a/-g/).

Table 2. Summary table: enrollment levels, ratios, and growth rates, selected years, 1960-83

	1960	1970	1975	1980	1983
Primary education					
Number of students	11,853	20,971	30,117	47,068	51,345
Index (1960 = 100)	100	177	254	397	433
Average annual growth rate					
from 1960 to:	.	5.9%	6.4%	7.1%	6.6%
from 1970 to:	.	.	7.5%	8.4%	7.1%
from 1975 to:	.	.	.	9.3%	6.9%
from 1980 to:	.	.	.	.	2.9%
Gross enrollment ratio	36%	48%	58%	76%	75%
Secondary education					
Number of students	793	2,597	4,284	8,146	11,119
Index (1960 = 100)	100	327	540	1,027	1,402
Average annual growth rate					
from 1960 to:	.	12.6%	11.9%	12.4%	12.2%
from 1970 to:	.	.	10.5%	12.1%	11.8%
from 1975 to:	.	.	.	13.7%	12.7%
from 1980 to:	.	.	.	.	10.9%
Gross enrollment ratio	3%	7%	10%	16%	20%
Tertiary education					
Number of students	21	116	216	337	437
Index (1960 = 100)	100	552	1,029	1,605	2,081
Average annual growth rate					
from 1960 to:	.	18.6%	16.8%	14.9%	14.1%
from 1970 to:	.	.	13.3%	11.3%	10.8%
from 1975 to:	.	.	.	9.3%	9.2%
from 1980 to:	.	.	.	.	9.1%
Gross enrollment ratio	0.2%	0.6%	0.8%	1.2%	1.4%
All levels					
Number of students	12,687	23,684	34,617	55,551	62,901
Index (1960 = 100)	100	187	273	439	497
Average annual growth rate					
from 1960 to:	.	6.5%	6.9%	7.7%	7.2%
from 1970 to:	.	.	7.9%	8.9%	7.6%
from 1975 to:	.	.	.	9.9%	7.6%
from 1980 to:	.	.	.	.	4.2%

Note: Numbers of students in thousands. Based on Annex Tables A.1-A.9.

Table 3. Estimated average years of education attended by working age population

		Average years of education attended				
		1965	1970	1975	1980	1983
Low-income economies	u	0.86	1.25	1.64	2.31	2.91
	a	0.44	0.79	1.20	1.71	2.20
Low-income semi-arid	u	0.11	0.33	0.51	0.80	0.96
	a	0.11	0.30	0.42	0.75	0.90
1 Mali		0.11	0.30	0.59	0.94	1.12
2 Burkina Faso		0.09	0.22	0.38	0.56	0.67
3 Niger		.	.	0.28	0.48	0.64
4 Gambia		.	.	.	.	.
5 Somalia		0.17	0.30	0.42	.	.
6 Chad		.	0.56	0.91	1.26	1.47
Low-income other	u	0.94	1.36	1.87	2.56	3.31
	a	0.49	0.88	1.38	1.90	2.94
7 Ethiopia		0.06	0.17	.	.	.
8 Zaire		1.15	1.96	2.89	3.99	4.71
9 Malawi		1.77	2.26	2.69	3.10	3.41
10 Guinea-Bissau		.	.	.	.	.
11 Tanzania		0.31	0.70	1.13	1.56	.
12 Burundi		0.47	0.75	1.11	1.43	1.53
13 Uganda		0.42	0.93	1.43	1.90	2.18
14 Togo		0.50	1.08	1.88	3.06	3.85
15 Central African Rep.		.	0.75	1.38	2.14	2.62
16 Madagascar		0.41	1.18	2.13	3.20	3.97
17 Benin		0.40	0.78	1.22	1.77	2.22
18 Rwanda		1.49	2.11	2.67	3.07	3.27
19 Kenya		1.19	1.92	2.67	3.57	4.26
20 Sierra Leone		0.31	0.69	1.17	1.71	.
21 Guinea		0.49	0.80	1.20	1.58	.
22 Ghana		5.33	5.96	.	.	.
23 Sudan		0.55	0.84	1.19	1.70	2.03
24 Senegal		0.27	0.71	1.20	1.64	1.93
25 Mozambique		2.02	2.32	.	.	.
Middle-income oil importers	u	1.24	1.84	2.61	3.18	4.50
	a	1.31	1.81	2.73	3.65	4.27
26 Mauritania		.	.	.	.	.
27 Liberia		0.51	1.00	1.60	2.30	.
28 Zambia		.	1.54	2.51	3.65	4.27
29 Lesotho		2.62	3.68	4.72	5.63	6.17
30 Cote d'Ivoire		0.47	0.94	1.47	2.10	.
31 Zimbabwe		1.31	2.20	3.08	3.76	.
32 Swaziland		.	1.81	2.95	4.24	.
33 Botswana		.	.	2.03	2.84	3.37
34 Mauritius		5.00	6.11	7.50	.	.
Middle-income oil exporters	u	1.99	2.36	2.64	3.03	3.51
	a	0.67	1.43	2.36	3.08	3.56
35 Nigeria		2.40	2.72	2.85	3.08	3.46
36 Cameroon		0.65	1.43	2.36	3.36	3.97
37 Congo		0.69	1.87	3.50	5.63	.
38 Gabon		.	1.21	1.98	2.93	3.56
39 Angola		0.10	0.40	0.88	1.57	.
Sub-Saharan Africa	u	1.21	1.60	2.06	2.63	3.19
	a	0.50	1.04	1.60	2.30	3.32
Francophone countries	u	0.65	1.18	1.78	2.52	2.86
	a	0.47	0.87	1.38	2.10	2.42
Anglophone countries	u	1.83	2.23	2.34	2.75	3.29
	a	1.25	1.85	2.59	3.08	3.43
Other	u	0.42	0.58	0.72	1.57	.
	a	0.14	0.33	0.65	1.57	.

Note: See the Technical Notes.

Table 4. Adult literacy

	Literates as percent of adult population	
	1960	1985 or Latest Year
Low-income economies	7	33.8
Low-income semi-arid	2	15.4
1 Mali	2.0	16.8
2 Burkina Faso	2.0	13.2
3 Niger	1.0	13.9
4 Gambia	6.0	25.1
5 Somalia	2.0	11.6
6 Chad	6.0	25.3
Low-income other	10	40.7
7 Ethiopia	1.0	55.2
8 Zaire	31.0	61.2
9 Malawi	.	41.2
10 Guinea-Bissau	5.0	31.4
11 Tanzania	10.0	.
12 Burundi	14.0	33.8
13 Uganda	25.0	57.3
14 Togo	10.0	40.7
15 Central African Rep.	7.0	40.2
16 Madagascar	.	67.5
17 Benin	5.0	25.9
18 Rwanda	16.0	46.6
19 Kenya	20.0	59.2
20 Sierra Leone	7.0	29.3
21 Guinea	7.0	28.3
22 Ghana	27.0	53.2
23 Sudan	13.0	.
24 Senegal	6.0	28.1
25 Mozambique	8.0	38.0
Middle-income oil importers	19	72.2
26 Mauritania	5.0	.
27 Liberia	9.0	35.0
28 Zambia	29.0	75.7
29 Lesotho	.	73.6
30 Cote d'Ivoire	5.0	42.7
31 Zimbabwe	39.0	74.0
32 Swaziland	.	67.9
33 Botswana	.	70.8
34 Mauritius	61.0	82.8
Middle-income oil exporters	16	56.2
35 Nigeria	15.0	42.4
36 Cameroon	19.0	56.2
37 Congo	16.0	62.9
38 Gabon	.	61.6
39 Angola	.	41.0
Sub-Saharan Africa	8.5	41.8
Francophone countries	6.5	40.2
Anglophone countries	17.5	58.3
Other	3.5	38.0

Note: Values for country groups are medians. See the Technical Notes.

Table 5. Cross-national comparisons of achievement in mathematics, reading, and science

	Index of achievement ^{a/}		
	Mathematics	Reading comprehension	General science
	(a)	(b)	(c)
<u>Industrial market economies (IMEs)</u>			
Francophone Belgium	0.81	1.00	0.79
England and Wales	..	0.96	0.92
Finland	0.76	1.00	0.93
France	0.84	..	..
Japan	1.00	..	1.00
United States	0.72	0.91	1.00
IME average (country sample size)	0.79 (14)	0.94 (9)	0.90 (11)
<u>Upper middle-income economies (UMEs)</u>			
Chile	..	0.82	0.59
Hong Kong	0.78	..	..
Hungary	0.89	0.95	0.87
Iran	..	0.53	0.52
UME average (sample size)	0.80 (3)	0.77 (3)	0.66 (3)
<u>Lower middle-income economies (LMEs)</u>			
Nigeria	0.53	..	..
Swaziland	0.50	..	..
Thailand	0.67	..	0.77
LME average (sample size)	0.57 (3)	.. (0)	0.77 (1)
<u>Low-income economies (LIEs)</u>			
India	..	0.72	0.59
Malawi	..	0.46	0.69
LIE average (sample size)	.. (0)	0.59 (2)	0.64 (2)

^{a/} The average number of items answered correctly by the sample of students in a particular country is expressed as the proportion of items answered correctly by the students in the highest scoring country. For further explanation and sources, see the Technical Notes.

Table 6. Countries grouped by gross primary enrollment ratios g/

	Gross primary enrollment ratio (a)	Enrollment growth rate minus growth rate of school-age population (b)	Repeaters as percentage of primary enrollment (c)	Females as percentage of primary enrollment (d)	Pupil-teacher ratio (e)	Public recurrent expenditure per pupil (f)	Public education expenditures as percentage of total public expenditures (g)	Public recurrent expenditures on primary education as percentage of total public recurrent expenditures on education (h)
Low primary enrollment countries (LPECs)	n 37 a 37	1.1	11 18	38 37	42 41	40 49	17.8 17.2	38 34
Somalia	21	-10.2	.	38	23	48	6.3	80
Mali	29	-2.4	33	37	37	41	37.2	33
Niger	28	-0.7	15	38	38	65	21.7	38
Burkina Faso	27	8.8	17	37	82	38	23.9	31
Guinea	38	0.1	28	32	38	75	12.7	31
Mauritania	37	6.0	17	38	45	143	.	28
Ethiopia	38	2.4	12	38	54	28	10.8	48
Chad	38	2.0	.	27	84	.	.	.
Burundi	45	18.2	14	40	48	63	.	38
Sudan	49	-0.1	(.)	41	34	.	.	.
Medium primary enrollment countries (MPECs)	n 68 a 67	-0.4	18 15	42 41	39 38	54 55	15.2 15.2	43 45
Senegal	53	5.4	15	40	41	101	.	48
Sierra Leone	54	2.4	.	41	34	40	17.8	40
Uganda	57	-0.4	10	43	38	8	.	18
Malawi	58	-1.8	15	42	58	13	8.5	38
Guinea-Bissau	62	-1.7	30	33	23	29	11.8	87
Rwanda	62	-1.3	12	48	54	47	24.0	74
Benin	67	2.8	22	38	38	.	.	.
Gambia, The	68	8.6	13	38	28	80	.	48
Liberia	70	-3.4	.	40	38	83	13.2	30
Ivory Coast	77	1.7	25	41	38	188	28.2	45
Central African Rep.	77	2.7	35	35	68	44	.	55
Mozambique	79	-8.9	28	43	58	16	.	.
Ghana	79	-2.7	2	44	28	.	15.2	32
High primary enrollment countries (HPECs)	n 88 a 108	0.0	14 18	47 48	39 42	53 28	18.3 18.3	41 48
Tanzania	87	-1.8	1	48	42	30	15.3	47
Nigeria	89	-2.4	.	.	38	55	9.3	33
Zaire	80	-0.3	18	43	42	.	.	.
Botswana	88	1.5	8	53	31	108	18.5	43
Zambia	100	1.2	1	47	48	39	15.2	48
Kenya	100	-0.8	13	48	37	78	15.3	65
Togo	102	-8.7	38	38	45	23	20.8	25
Madagascar	104	1.3	.	48	.	25	.	58
Cameroon	108	.0	30	48	50	48	17.2	41
Lesotho	110	3.5	23	58	52	31	17.9	37
Swaziland	111	1.8	13	50	33	100	.	47
Mauritius	112	1.8	.	48	23	151	10.3	48
Gabon	118	-0.8	32	48	44	.	.	.
Zimbabwe	131	11.2	1	48	40	122	17.8	81
Angola	134	-7.8	38	48	37	.	10.1	.
Congo, People's Rep.	183	-0.1	31	48	58	.	19.2	48
Sub-Saharan Africa	n 75 a 77	0.0	14 18	44 42	39 38	52 48	11.8 15.3	41 43

Note: Based on Annex Tables A.1, A.7, A.11, A.12, A.14, A.18, and A.17.

g/ LPECs: gross primary enrollment ratio below 50% in 1983. MPECs: ratio between 50% and 80%. HPECs: ratio above 80%.

Table 7. Enrollment characteristics and education expenditure by secondary enrollment groups a/

		Gross secondary enrollment ratio (a)	Ratio of secondary to primary enrollments (b)	Progression rate from primary to secondary (c)	Females as percent of secondary enrollments (d)	Public expenditure on education as a percent of GNP (e)	Secondary as percent of public recurrent expend- iture on education (f)
Low secondary enrollment countries (LSECs)	n	5	.07	18	30	3.0	29
	a	5	.10	18	32	3.3	30
Rwanda		2	.02	4	34	3.1	14
Tanzania		3	.02	8	35	5.8	30
Burkina Faso		4	.13	22	34	3.2	17
Burundi		4	.09	8	37	3.4	35
Malawi		4	.03	7	29	3.0	15
Chad		6	.18	19	15	.	.
Mozambique		6	.10	40	30	.	.
Niger		6	.18	35	27	3.6	31
Mali		7	.28	42	28	3.7	37
Uganda		8	.09	13	33	1.3	40
Medium secondary enrollment countries (MSECs)	n	15	.18	46	37	4.9	31
	a	15	.21	45	33	4.0	30
Ethiopia		11	.23	93	38	3.1	29
Guinea-Bissau		11	.13	68	19	3.0	15
Angola		12	.11	50	33	4.7	.
Mauritania		12	.28	39	24	.	32
Senegal		12	.21	29	33	.	28
Somalia		14	.29	50	34	1.4	25
Guinea		15	.34	69	28	4.0	37
Madagascar		15	.15	.	44	2.3	36
Sierra Leone		15	.22	73	28	3.5	31
Central African Rep.		16	.20	36	28	.	15
Zambia		17	.10	21	38	5.5	34
Gambia, The		19	.24	44	31	5.9	26
Kenya		19	.12	35	40	4.8	15
Lesotho		19	.10	45	60	3.9	35
Sudan		19	.32	53	41	.	.
Cote d'Ivoire		20	.23	30	29	9.1	40
High secondary enrollment countries (HSECs)	n	30	.29	57	33	4.4	49
	a	24	.23	54	39	5.3	35
Liberia		21	.23	63	29	5.3	16
Cameroon		21	.18	28	39	3.8	35
Botswana		21	.13	31	54	7.2	29
Benin		22	.29	40	28	.	.
Gabon		23	.20	27	40	.	.
Nigeria		23	.24	.	.	4.3	58
Togo		24	.22	31	25	5.9	26
Ghana		38	.52	.	37	2.0	41
Zimbabwe		39	.20	74	40	7.6	24
Swaziland		43	.22	68	49	4.7	35
Mauritius		51	.57	54	47	4.3	36
Zaire		52	.48	71	28	.	.
Congo, People's Rep.		67	.50	73	41	6.0	25
Sub-Saharan Africa	n	20	.22	43	34	4.3	42
	a	16	.20	40	33	3.9	31

Note: Based on Annex Tables A.1, A.2, A.8, A.12, A.14, and A.16.

a/ LSECs: gross secondary enrollment ratio below 10% in 1983. MSECs: ratio between 10% and 20%. HSECs: ratio above 20%.

Table 8. Unit cost indicators by secondary enrollment groups

Variable	1970	1975	1980	1983
Secondary enrollment groups a/				
Public expenditure per secondary student (in constant 1983 \$)				
LSECs	452	346	207	256
MSECs	250	255	186	163
HSECs	397	230	204	225
Sub-Saharan Africa	362	308	195	223
Public expenditure per secondary student (as % of GNP per capita)				
LSECs	249	207	122	115
MSECs	88	78	64	60
HSECs	78	38	35	37
Sub-Saharan Africa	111	93	62	62
Public expenditure per secondary student (as multiple of expenditure per primary pupil)				
LSECs	10.3	8.1	11.1	9.6
MSECs	3.5	5.2	3.2	3.1
HSECs	4.8	4.8	4.0	3.6
Sub-Saharan Africa	5.6	5.6	3.8	4.1
Secondary student-teacher ratio				
LSECs	17	19	23	19
MSECs	21	21	22	24
HSECs	22	22	21	23
Sub-Saharan Africa	21	21	22	23
Secondary repetition rate (%)				
LSECs	9	12	10	12
MSECs	11	13	10	16
HSECs	11	11	19	17
Sub-Saharan Africa	10	12	10	16

Note: Figures shown are medians. Based on Annex Tables A.11, A.12, A.17, and A.18

a/ LSECs: gross secondary enrollment ratio below 10% in 1983. MSECs: ratio between 10% and 20%. HSECs: ratio above 20%.

Table 9. Percentage of nationals among teaching staff in post-primary education

Country	Year	Secondary	Higher
Benin	1979	97.3	66.7
Botswana	1978	25.5	21.4
Burundi	1978	37.2	.
Central African Republic	1978	.	34.2
Equatorial Guinea	1978	69.0	.
Gabon	1977	16.4	16.5
Gambia	1979	75.9	85.7
Guinea Bissau	1978	83.4	.
Ivory Coast	1978	47.0	51.2
Kenya	1978	80.0	.
Liberia	1978	77.0	.
Malawi	1977	71.4	.
Mali	1978	97.1	40.5
Mauritania	1977	39.7	.
Niger	1977	40.0	.
Rwanda	1979	73.9	52.3
Senegal	1978	73.7	49.0
Swaziland	1980	74.7	.
Togo	1979	92.0	77.0
Mean	—	65.1	49.5
Median	—	74.3	50.1

Source: [UNESCO, 1982].

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TECHNICAL NOTES

The technical notes provide general information for groups of tables, further information on specific tables within the group, and country specific notes on individual data items. When possible, definitions for the technical notes have been taken from official publications, such as The World Development Report, published annually by the World Bank and the UNESCO Statistical Yearbook.

All monetary growth rates are shown in constant prices. In Annex A growth rates have been computed using the compound growth rate equation,

$$X_t = X_0(1+r)^t,$$

where X is the variable, t is time, and r is the growth rate.

Growth rates in annex B have been computed using the least squares method. The least squares growth rate is estimated by regressing the annual values of the variable in the relevant period using the logarithmic form,

$$\log X_t = a + bt + e_t,$$

where X_t is the value of the variable X in year t, a is the intercept, b is the slope coefficient, and e_t is the error term. The growth rate is equal to $(\text{antilog } b) - 1$. This is equivalent to the logarithmic transformation of the compound growth rate equation.

PART A. EDUCATION INDICATORS

Tables 1, 2, 4, 6. Enrollment

Enrollment includes students of all ages enrolled in both public and private schools, unless otherwise noted. Enrollment growth rates are calculated using the compound growth equation described in the introductory narrative to the technical notes. The percentage of females enrolled at each level is computed as the number of females enrolled divided by total enrollment; the means are weighted by total enrollment.

Mean enrollment growth rates are computed from group enrollment totals of those countries with data for the first and last years of the growth period. Means for the percentage of females are computed from group totals of female and total enrollment.

In order to obtain a close approximation of enrollment in 1983, only data for the years 1982-1984 are reported. In cases where data for these years were unavailable, the least squares regression line was fitted to enrollment data from 1970 to obtain enrollment estimates. These estimates should not be interpreted as precise qualitative indications of enrollment. They are included only to obtain more valid aggregate measures for 1983 than could be obtained in their absence.

Other notes:

Table 1. Primary enrollment

Liberia: Data include pre-primary enrollment.

Table 2. Secondary enrollment

Botswana (1970): Data refer to government maintained and aided schools.

Table 4. Tertiary enrollment

Cote d'Ivoire (1970): Data refer to institutions under the Ministry of Education only.

Nigeria (1970): Data at the tertiary level include teacher education.

Swaziland: Data on students enrolled include students studying abroad.

Table 3. Distribution of secondary enrollment by type of education

The term general refers to education in secondary schools which require at least four years of primary preparation and which do not aim to prepare students directly for a specific trade or occupation. Such schools may be called high schools, middle schools, lyceums, gymnasiums, etc., and offer courses of study whose completion is a minimum condition for university admission. Schools providing both academic and vocational training are also classified as general secondary. Teacher training refers to education in secondary schools that train students for the teaching profession. Technical and vocational education covers education provided in secondary schools that prepare students for a trade or occupation other than teaching. Such schools vary greatly as to the type and duration of training.

Mean percentages are weighted by total secondary enrollment. The data shown are for the years 1981 to 1983 with the following exceptions: Nigeria and Chad (1984), and Mauritania and Swaziland (1980).

Other notes:

Ghana (1970): Middle schools are classified at the primary level.

(1980): Commercial schools are included in general education rather than vocational/technical. For teacher training, data are not comparable to previous years due to reorganization.

Uganda: Data refer to government maintained and aided schools only.

Tanzania (1970): Vocational is included with general education;

(1983): General education data include only part of vocational education.

Table 5. Distribution of tertiary enrollment by field of study

Definitions of levels and the composition of fields of study follow the International Standard Classification of Education (ISCED) system. ISCED defines 20 fields of study in higher education which here have been reduced to two broad areas and five fields of study. The broad field Arts includes education, the social sciences, and commerce and business. Education includes education science and teacher training; the social sciences include fine and applied arts, humanities, religion and theology, social and behavioral sciences, law, home economics, mass communication and documentation, and service trades.

Natural sciences, medical sciences, agriculture, mathematics and engineering make up the broad Science field. Medical sciences includes health and hygiene. Agriculture includes forestry and fisheries. Included with mathematics and engineering are: computer sciences, architecture and town planning, transport and communications, trade, craft and industrial programs.

The other category covers other or non-specified fields of study.

The means for the distribution of enrollment by field of study are weighted by total tertiary enrollment; those for the percent of all females enrolled are weighted by tertiary female enrollment.

Due to the unavailability of data prior to 1980, only the most recent year for which data were available is shown. Figures for Nigeria, Cameroon and Malawi are for 1980; for all other countries, data are for either 1982 or 1983.

Other notes:

Burkina Faso: Education is included with social sciences.

Burundi: Social and behavioral sciences are included with commercial and business administration.

Cameroon: Data refer to universities and degree granting institutions only.

Central African Republic: Education includes humanities, religion and theology.

Congo: Commercial and business administration, mass communication and documentation are included in social sciences, mathematics and computer sciences are in natural sciences.

Guinea: Law is included in commercial and business administration; humanities, religion, theology, social and behavioral sciences, math and computer sciences are included in education.

Kenya: Humanities, religion, theology, other and non-specified subjects are included in education.

Malawi: Data refer to universities and degree-granting institutions only.

Rwanda: Commerce and business administration are included in social sciences.

Swaziland: Data refer to universities and equivalent degree granting institutions; math and computer sciences are included in natural sciences.

Togo: Mass communication and documentation are included in social sciences; humanities, religion, theology, fine and applied arts, in education.

Zambia: Humanities, religion and theology are included in social sciences; architecture, town planning and trades, crafts and industrial programs are with engineering.

Zimbabwe: Data refer to universities and equivalent degree granting institutions. Commercial and business administration are included with social sciences, math and computer sciences with natural sciences.

Tables 7, 8 and 9. Enrollment ratios

The data on number enrolled refer to estimates of total, male, and female enrollment of students of all ages. They are expressed as percentages of the total, male, and female populations of school age to give gross enrollment ratios. Thus, the gross primary enrollment ratio describes the capacity of a school system relative to the size of the official school age population. For example, a ratio of 100% indicates that the number of children actually enrolled, including those outside the official age range, is equivalent to the size of the official primary school-age population. It does not mean that all children of official primary school-age are actually enrolled. When misinterpreted in this way, the ratio overstates the actual enrollment picture in those countries where a sizeable proportion of students are underage or overage owing to early or delayed entry and/or to repetition.

While many countries consider primary school age to be 6-11 years and secondary school age, 12-18 years, others do not. The differences in national systems of education and durations of schooling are reflected in the primary and secondary ratios while for tertiary education, the total enrollment of all ages is divided by the population aged 20-24.

The means are weighted by the school-age populations.

The enrollment data used to compute the gross enrollment ratios appear in Tables 1, 2 and 4. School-age population estimates are from the U.N. Population Division and World Bank data files.

Table 10. Teachers and schools

In general, data in this table cover both public and private schools. Data on teachers refer to both full- and part-time teachers and exclude other instructional personnel without teaching functions. Because the proportion of part-time teachers varies greatly from one country to another, data comparability may be affected, particularly the pupil-teacher ratios in Table 11. The means for the average number of students per school are weighted by the number of schools.

Figures marked with an asterisk are for 1981 or 1982, excluding Chad, Zimbabwe and Nigeria whose figures are for 1984. For the following countries secondary data refer to secondary general education only: Mali, Ethiopia, Burkina Faso, Togo, Mauritania, Swaziland, Mauritius and Zambia.

Other notes:

Burkina Faso (1983): Data on primary teachers refer to public education.
Tanzania: Primary school data refer to government maintained and aided schools.

Kenya (1983): Secondary teachers includes tertiary teacher training.

Malawi: Secondary teachers includes tertiary teacher training.

Senegal (1982): Data on secondary teachers refer to public education.

Botswana (1970): Data on secondary education refer to government maintained and aided schools.

Table 11. Student-teacher ratios

The student-teacher ratios are computed as the number of students enrolled divided by the number of teachers, both full- and part-time. The means are computed from group totals of enrollment and teachers. The years of data coverage are the same as those for tables 1, 2, 4 and 10.

Other notes:

Chad: Data on primary education exclude Moslem private education.

Uganda: Data for primary and secondary education refer to government maintained and aided schools.

Table 12. Student flow and efficiency indicators

Repeaters as a percentage of enrollment is computed by dividing the total number of repeating students by the number of students enrolled for both public and private institutions. In cases where data on repeaters in private institutions was not available, UNESCO estimates of the number of repeaters in these institutions were used. In some cases, the estimates reflect the proportion of repeaters in private schools for previous years. When no information was available, data on repeaters were adjusted to reflect the incidence of private enrollment. In no case, however, did the missing data constitute more than 5% of total enrollment.

The survival rate is an indicator of the holding power of schools and represents the proportion of entering students who can be expected to reach the final year of primary school given prevailing drop-out rates. Reconstructed Cohort analysis was used to derive the rates. On the basis of promotion, repetition and drop-out rates, the method simulates the progression of an entering cohort ($n = 1,000$) through the primary school cycle, deriving for each grade and year the number of pupils who are promoted, repeat the same grade the following year, or dropout.

Cost per primary school completer is an efficiency index defined as the ratio of the total number of student years invested in each primary school completer to the number of years in the school cycle given prevailing promotion, repetition and dropout rates. The index value shows the average cost per completer relative to the prescribed cost and was derived by means of cohort analysis (see paragraph above). For example, an index of 1.5 indicates that the cost to the system per graduate was 50% greater than it would have been if there were no repeaters or school leavers.

Progression from the last grade of primary school to the first grade of secondary school indicates the proportion of pupils enrolled in the final grade of primary school who enroll in the first grade of secondary school in general education the following year. The rate is derived by subtracting the number of repeaters in grade one of secondary general education in year t from the total enrollment in year $t+1$ and dividing this figure by the enrollment in the final grade of primary school in year t .

The survival, cost and progression figures shown are for the most recent year for which promotion, repetition and drop-out rates were available. In general, the data cover the years 1980-1983.

The means for percent repeaters, cost per completer and progression to secondary school are weighted by total enrollment, the number of years in the school cycle and total enrollment in the last grade of primary school, respectively.

Table 13. Percentage of students enrolled in private schools

The number of students enrolled in private schools is expressed as a percentage of all students enrolled in both public and private institutions for primary and secondary education. Care should be taken when interpreting these figures since some countries classify aided schools as private while others do not.

The means are weighted by primary or secondary enrollment. All data shown are for the most recent year, generally between 1980 and 1983.

Table 14. Total public expenditure on education

Total public expenditure on education includes both capital and recurrent expenditure at every level of administration according to the constitution of the country, i.e., central or federal government, state governments, provincial or regional authorities and local authorities, unless otherwise indicated. Recurrent expenditure refers to expenditure on administration, teachers' emoluments and supporting teaching staff, school books and other teaching materials, scholarships, welfare services and maintenance of school buildings. Capital expenditure covers expenditure on land, buildings, construction, equipment, etc. This item also includes loan transactions.

Total public expenditure on education is expressed in constant 1983 U.S. dollars. Local currencies were converted by applying the GDP deflator and 1983 official exchange rate. Education expenditure expressed as a percentage of Gross National Product (GNP) and total government expenditure were computed with constant dollar GNP and total government expenditure. GNP data are from the World Bank, total government expenditure data are from UNESCO, supplemented with information from World Bank data files.

The weighted total expenditure growth rates reflect the real growth of total education expenditure for those countries with data for both the first and last years of the growth period. The growth rate was computed by summing across all countries with data for both years and applying the compound growth formula. The means for education expenditure as a percent of GNP and of total government expenditure are weighted by constant dollar GNP and total government expenditure respectively.

All 1983 figures with an asterisk are for 1982 with the exception of Nigeria (1984) and the notable exceptions of those for Gambia, Burundi, Swaziland and those for the Congo which are 1981 figures. Total education

expenditure for these four countries are shown but are not included in the calculation of growth rates for 1980-1983. All 1980 figures with asterisks are for 1979, excluding those for Nigeria and Angola which are for 1981.

Other notes:

Angola: Data refer to expenditure of the Ministry of Education only.

Ethiopia (1982): Data include foreign aid.

Kenya (1983): Data refer to the Ministry of Basic and Higher Education.

Madagascar (1970): Data include foreign aid for tertiary education; from 1980-1983, expenditure on tertiary education is not included.

Somalia (1980,1983): Data refer to the Ministry of Education only.

Tanzania (1983): Data refer to the Ministry of Education only.

Table 15. Distribution of total public expenditure on education by component (recurrent or capital)

For the categories of expenditure included under recurrent and capital, the methodology for computing growth rates and the years and sources of data, consult the notes to Table 14.

Table 16. Public recurrent expenditure on education by level of education

Public recurrent expenditures on primary, secondary and tertiary education are expressed as percentages of total public recurrent education expenditure. The non-specified category is treated as a residual and includes expenditure on other types of education (e.g., adult education) and all expenditure which could not be attributed to any of the three levels of formal education. The latter may include expenditure on administration for which there is no breakdown by level of education.

The means for primary, secondary and tertiary education are weighted by recurrent expenditure in constant 1983 dollars; means for the non-specified expenditure is a residual, i.e., 100 minus the sum of the percentages for primary, secondary, and tertiary education.

Other notes:

Gambia: Except for 1980, only teachers' emoluments are distributed by level of education.

Mali: Scholarships and allocations for study abroad for all levels of education are included with higher education.

Swaziland: Data refer to expenditure of the Ministry of Education only.

Uganda: Data refer to expenditure of the Ministry of Education only.

Tables 17, 18 and 19. Public recurrent expenditure per primary, secondary and tertiary student

Recurrent public expenditure per primary and secondary student is expressed in 1983 constant dollars and as a percentage of constant dollar income per capita; tertiary per student expenditure is expressed as a multiple of constant dollar GNP per capita. Per student expenditures on

teaching materials are expressed in current dollars. All means are weighted by total enrollment at the respective level of education.

The 1983 per student expenditure figures with an asterisk are for 1982, with the exception of Nigeria which is for 1984, and the Gambia, Burundi, Swaziland and the Congo which are for 1981. The 1980 figures with an asterisk are for 1979, excluding Nigeria and Angola which are for 1981. Per student expenditure on materials was computed using data for the most recent year for which they were available. See notes to Tables 20 and 21.

Tables 20, 21, and 22. Distribution of public recurrent expenditure by purpose

In these tables, public recurrent expenditure on administration, teachers' emoluments, teaching materials, scholarships, and welfare services are expressed as percentages of total recurrent expenditure on primary, secondary and tertiary education.

Administration includes emoluments of administrative staff and other expenditure of central and local administrations. Teachers emoluments refers to salaries and additional benefits paid to teachers and to other auxiliary teaching staff. Teaching materials covers expenditures directly related to instructional activities such as the purchase of textbooks and other scholastic supplies. Scholarships includes all forms of financial aid granted to students for studies in the country or abroad. Welfare services refers to expenditure on boarding school meals, transport, medical services, etc. Expenditures which cannot be classified in one of these categories and other expenditure attached to the operation and maintenance of buildings and equipment are captured in the amount not distributed.

The means are weighted by total public recurrent expenditure for the respective level of education in constant 1983 dollars.

Figures for Mali, Somalia, Guinea-Bissau, and Zambia are for 1982. Figures for Ethiopia, Burundi, Togo, Ghana, Senegal, Swaziland and the Congo are for 1981. Tanzania's figure is for 1979.

Other notes:

Burundi: Data refer to expenditure of the Ministry of Education only.

Senegal: Data refer to expenditure of the Ministries of Primary and Secondary Education only.

Swaziland: Data refer to expenditure of the Ministry of Education only.

Table 23. Primary and secondary teachers' average salaries

The teacher salary figures shown are expressed in current US dollars converted at official exchange rates. Caution should be exercised when interpreting the average teachers' salaries. The figures were computed by applying the percent of public recurrent education expenditure allocated to teachers' emoluments shown in Tables 20 and 21 to the recurrent public education expenditure on primary and secondary education

for the same year, and dividing by the number of teachers shown in Table 10. Data for the latter may not, in every case, pertain to the same year for which expenditure data are reported.

The means for average teachers' salaries are weighted by the total number of teachers.

Table 24, 25, 26, and 27. External aid to African education and training

External aid to education and training consists of loans and grants, made on concessional and non-concessional financial terms by all bilateral, multilateral and private sources. Bilateral donors not listed but included in the other category are Canada, Denmark, the Netherlands, Switzerland, and all other OECD and OPEC members whose aid represents less than 3% of the total aid to education and training. Included in the other category of multilateral donors are UNESCO, WHO and other donors whose aid represents less than 1% of total education aid. Education aid from the USSR is captured in the total for the East-European non-market economies, that from private sources is captured in the total for non-government organizations.

The value of education aid is the average annual aid disbursed or committed between 1981 and 1983, converted from local currencies by applying single year official exchange rates. Aid from the International Development Association, IBRD, the African Development Bank and African Development Fund are average commitments. From all other donors, average net disbursements are shown.

The breakdown of direct education aid between capital and recurrent expenditures is inconsistent between Tables 25 and 27 owing to differences in the sources for the two tables and in the way these sources treat technical assistance. Technical assistance that is used for capacity-building purposes is classified by some sources as an investment item rather than as recurrent expenditures.

Education sector aid refers to the value of capital and non-capital aid disbursed to central departments of education. Capital aid represents the value of external assistance for construction and equipment. Non-capital aid includes the value of overseas fellowships, technical assistance, and financial support for education's operating costs, the purchase of supplies and for miscellaneous expenses. Fellowships include external assistance for tuition, fees and living expenses to support African students studying abroad. Aid for technical assistance refers to the cost of foreign nationals working for the recipient country.

Aid for project related training (PRT) reflects the estimated value of external financial assistance for training in sectors other than education. Because data on assistance for project related training is only available for the World Bank (International Development Association and IBRD), all other figures are estimates. The estimates are calculated by applying the ratio of PRT to total aid observed for the World Bank to the total aid of the other donors.

The cost of hosting African students abroad is an estimate of the educational costs of all African students studying in foreign colleges and universities that are not covered by tuition and fees. In countries which charge no fees, the host country subsidization of African students represents full teaching costs. In the U.S., tuition and fees cover approximately two-thirds of an estimated \$7,000 annual per student cost. The level of subsidization estimated for the U.S. is also applied to estimate the cost of hosting African students in the U.K.

The data on external aid to the education sector from OECD and OPEC countries are drawn from annual reports prepared in each country by the local UNDP office on external aid, and from financial reports of USAID, the World Bank, the African Development Bank and the African Development Fund. A more complete description of the data and sources is available [Millot, Orivel and Rasera, 1986].

Table 28. External public debt of the education sector

The data on debt in this and other debt tables in Annex B are from the World Bank Debtor Reporting System. The dollar figures shown are in current US dollars converted at official exchange rates.

Outstanding and disbursed external public debt represents the amount of public and publicly guaranteed loans that has been disbursed to the education sector, net of repayments of principal and write-offs at year-end. Public loans are external obligations of public debtors, including the national government, its agencies, and autonomous public bodies. Publicly guaranteed loans are external obligations of private debtors that are guaranteed for a repayment by a public entity. The data do not cover nonguaranteed private debt due to the unavailability of country level data.

Debt service is the sum of interest payments and repayments of principal on external public and publicly guaranteed debt.

The data in this table should be used with caution. Sufficient information is not always available to enable accurate sectoral allocations to be made. Frequently, debt can only be assigned to an unallocated sector. All values should thus be considered as lower bounds.

PART B: ECONOMIC AND SOCIAL INDICATORS

Table 1. Basic indicators

The estimates of population for mid-1984 are based on data from the U.N. Population Division and World Bank sources. Refugees not permanently settled in the country of asylum are generally considered to be part of the population of their country of origin. Data on area are from the FAO Production Yearbook, 1984.

Gross National Product (GNP) measures the total domestic and foreign output claimed by residents excluding deductions for depreciation. The 1984 GNP and GNP per capita figures are calculated according to the

World Bank Atlas method. To smooth the impact of fluctuations in prices and exchange rates, a conversion factor computed as the average of the actual and deflated exchange rates for the base period 1982-1984 are applied to 1984 GNP converted at current purchaser values. The resulting GNP in US dollars is then divided by the mid-year population to derive the 1984 per capita GNP.

The average annual rate of inflation is the growth rate of the gross domestic product (GDP) implicit deflator and shows annual price movements for all goods and services produced in an economy. The GDP deflator is first calculated by dividing the value of GDP at current purchaser values by the value of GDP at constant purchaser values, in national currencies, for each year of the period. The least squares method is then used to calculate the growth rate of the GDP deflator for the period.

Life expectancy at birth indicates the number of years a newborn child would be expected to live assuming that mortality patterns prevailing at the time of his/her birth were to remain constant throughout his/her life. Data are from the U.N. Population Division, supplemented by World Bank estimates.

The means for GNP per capita and life expectancy are weighted by population. Those for average annual rates of inflation are weighted by the share of country GDP valued in current U.S. dollars for the entire period.

Table 2. Languages of Sub-Saharan Africa

The number of languages refers to the estimated number of indigenous languages spoken in each country. The figures shown are not exact. Information provided is sufficient only to distinguish between linguistically heterogeneous and homogeneous countries.

Principal languages are indigenous languages spoken by at least 10 percent of a country's population and any other language(s) serving as an official language, lingua franca, or medium of instruction in the country's system of education. Several names are sometimes used for the same language. Equivalent language names are listed at the end of the notes for this table.

The percentage of population speaking a language is broken down into the percentages who speak it as a mother tongue and as a second language. The total percentage of the population estimated to speak a language can be ascertained by summing these two percentages.

The official language(s) is the language recognized and promoted for use in official domains such as law courts, national speeches, public documents, and is often the language of instruction. The percentage of speakers of the official language is only roughly estimated, when estimated at all. This percentage is usually directly related to the percentage who complete several years of formal education. A lingua franca is a common language used as a means of communication between groups of people whose mother tongues differ.

A language is defined as a medium of instruction when it is used to teach a variety of subjects in the curriculum. A language is not considered a medium of instruction when it is taught only as a subject. The medium of instruction is divided into four levels: lower primary, upper primary, and post-primary. The language of lower primary refers to the medium of instruction used in the first three/four years of primary education; upper primary, the last half of primary instruction. Post-primary education includes secondary schools, universities, colleges, and other post-secondary schools.

The data in this table are based on [Bruhn, 1984; Center for Applied Linguistics, 1984; Morrison et al., 1972; Tadadjeu, 1980; and Skinner, Table A, 1985]. The table was compiled by a consultant to the World Bank, Dianne C. Bowcock.

Other principal languages

Burkina Faso	:	Mande Senufo Fulfulde	Mozambique	:	Sena Shona Ndau Mallua
Cameroon	:	Bassa Duala Hausa		:	Chope Tsonga Makonde
Gambia	:	Arabic	Niger	:	Fulfulde Tuareg Kanuri Tamahiq
Guinea-Bissau	:	Balante Fulfulde Malinke	Sudan	:	Nuba Fuv Dinka Nuer
Kenya	:	Nandi			
Mauritania	:	Berber Soninke			
Mauritius	:	Creole (French) Bhodjpuri Chinese Hindi Telegu Urdu			

Language Names

<u>Name used</u>	<u>Equivalent</u>
Akan	Twí-Fanti
Bambara	See Manding
Bemba	CiBemba
Dagbani	Mole-Dagbani
Dyula	See Manding

Fulfulde	Fulani, Peul, Fulbe, Fula, Ful, Pulaar, Adamawa
Galla	Oromo
Ganda	Luganda
Gaya	Gbaya
Ibo	Igbo
Kabiay	Kabre
Kanuri	Manga, Lare, Kagama, Bornu, Sirata
Kongo	KiKongo, Kituba, Kingala
Lingala	Bangala, Ngala, Mangala
Luba	CiLuba, Tshiluba
Luhya	Lukuya
Malinke	See Manding
Manding	Bambara, Dyula, Mandinka, Malinke, Mande, Jula, Dioula, Mandekan, Kangbe, Mandingo
Mossi	More
Nganguela	Ganguela
Ngbandi	Banda
Nyanja	Chinyanja, Chewa, Chichewa
Rundi	Kirundi
Sango	A pidgin "based on Ngbandi," [Morrison, p. 200]
Song'ai	Songhay, Songhai, Sonay
Sotho	Sesotho
Swahili	Kiswahili, Mbalazi, Tanga
Swati	Swazi, Siswati
Tamahaq	Tamacheq, Tamasheq
Teke	Lali, Lari
Rswana	Setswana
Wolof	Oulof, Olof, Jolof

Tables 3 and 4. Population growth and projections

The population growth rates are period averages calculated from mid-year population estimates. All means are weighted by each country's share in the aggregate population.

The estimates of population for mid-1984 are based on data from the U.N. Population Division and World Bank data files. In many cases, they take into account the results of recent population censuses. Note again that refugees not permanently settled in the country of asylum are generally considered to be part of the population of the country of origin.

Population projections are made starting with information on total population by age and sex, fertility and mortality rates and international migration in the base year 1980. These parameters are projected at five year intervals on the basis of generalized assumptions until the population becomes stationary.

To project fertility rates, the year in which fertility will reach replacement level is estimated (see definition below). These estimates are speculative and are based on trends in crude birth rates, total fertility rates (see notes to Table 5 for definitions), female life

expectancy at birth, and the performance of family planning programs. For most countries in Sub-Saharan Africa, total fertility rates are assumed to remain constant for some time and then to decline until replacement level is reached. For a few countries, they are assumed to increase until 1990-1995 and then to decline.

Mortality rates are projected as a function of the female primary enrollment ratio and life expectancy in 1980-1985. For a given life expectancy at birth, the annual increments during the projection period are larger in countries with a primary school enrollment ratio greater than 70% and a life expectancy of up to 62.5 years. At higher life expectancies, the increments are the same.

Migration rates are based on past and present trends in migration flows. The estimates of future net migration rates are assumed to be zero by 2000, but for a few countries, they are assumed to be zero by 2025.

The 1980 base-year estimates are from updated files of the U.N. World Population Prospects as Assessed in 1982, the most recent issues of the U.N. Population and Vital Statistics Report, World Bank country data, and national population censuses.

The net reproduction rate (NRR) indicates the number of daughters a newborn girl would bear during her lifetime, assuming fixed age-specific fertility and mortality rates. An NRR of 1 indicates that fertility is at replacement level. At this rate, child-bearing women, on average, bear only enough daughters to replace themselves in the population.

A stationary population is one in which age- and sex-specific mortality rates have not changed over a long period, while age-specific fertility rates have simultaneously remained at replacement level (NRR = 1). In such a population, the birth rate is constant and equal to the death rate, the age structure is constant, and the growth rate is zero.

Population momentum is the tendency for population growth to continue beyond the time that replacement-level fertility has been reached (NRR=1). The momentum of a population in year t is measured as a ratio of the ultimate stationary population to the population in the year t , assuming that fertility remains at replacement level from the year t onward.

The estimates of the hypothetical size of the stationary population and the assumed year of reaching replacement-level fertility are speculative and should not be regarded as predictions. They are included to show the long-run implications of recent fertility and mortality trends on the basis of highly stylized assumptions. A more complete description of the methods and assumptions used in calculating the estimates is available in the World Bank publication, World Population Projections - 1985: Short- and Long-Term Estimates By Age and Sex With Related Demographic Statistics.

Table 5. Demography and fertility

Crude birth and death rates indicate the number of live births and deaths per thousand population in a year. The total fertility rate represents the number of children that would be born per woman if she were to live until the end of her childbearing years and bear children in accordance with prevailing age-specific fertility rates.

The means for all indicators are weighted by each country's share in the aggregate population. The data sources are the same as those cited in the notes to Table 4.

Table 6. Urbanization

The data on urban population as a percentage of total population are from the U.N. Estimates and Projections of Urban, Rural and City Populations 1950-2025: The 1982 Assessment, 1985, supplemented by data from various issues of the U.N. Demographic Yearbook, and from the World Bank.

The urban population growth rates are calculated from the World Bank's population estimates; the estimates of urban population shares are calculated from the sources cited in Tables 1, 3 and 4. Data on urban agglomeration are from the U.N. Patterns of Urban and Rural Population Growth, 1980.

Because estimates in this table are based on different national definitions of what is "urban," cross-country comparisons should be made with caution.

The means for urban population as a percentage of total population are calculated from country percentages weighted by each country's share in the aggregate population; the other means are weighted in the same fashion, using urban population.

Table 7. Labor force

Estimates of the population of working age refer to the population aged 15-64 and are based on World Bank population estimates for 1984 and previous years. The means are weighted by population.

The labor force refers to economically active persons aged 10 years and over, including the armed forces and the unemployed, but excluding housewives, students and other economically inactive groups. The agricultural sector comprises agriculture, forestry, hunting, and fishing. Industry comprises mining, manufacturing, construction, and electricity, water and gas. All other branches of economic activity are categorized as services. Estimates of the sectoral distribution of the labor force are from the International Labor Organization (ILO), Labor Force Estimates and Projections, 1950-2000, 3rd edition, and from the World Bank. Means are weighted by the size of the labor force.

The labor force growth rates are derived from the Bank's population projections and from ILO data on age-specific activity rates in the source cited above. The application of the ILO activity rates to the Bank's latest population estimates may be inappropriate for some countries in which there have been important changes in unemployment and underemployment, in international and internal migration, or in both. The labor force projected growth rates should therefore be used with caution. The summary measures for 1965-73 and 1973-84 are country growth rates weighted by each country's share in the aggregate labor force in 1973; those for 1980-2000, by each country's share in the aggregate labor force in 1980.

Table 8. Growth of production

Gross domestic product measures the final output of goods and services produced by an economy, i.e., by residents and nonresidents, regardless of the allocation to domestic and foreign claims and without deductions for depreciation. Sectoral definitions are described in the notes to Table 7.

The figures for GDP are dollar values converted from local currency by using the single-year official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used.

Growth rates were calculated from constant price series using the least squares method.

Table 9. Central government expenditure

Central government expenditure comprises current and capital expenditure by all government offices, departments, establishments, and other bodies that are agencies or instruments of the central authority of a country. The shares of government expenditure by category are calculated from national currencies.

Defense comprises all expenditure on the maintenance of military forces; including the purchase of military supplies and equipment, construction, recruiting and training. Expenditure on strengthening public services to meet wartime emergencies, the training of civil defense personnel, research and development, and on the administration of military aid programs are also included.

Education comprises expenditure on the provision, management, inspection, and support of pre-primary, primary, and secondary schools; of universities and colleges; and of vocational, technical and other training institutions by central governments. Also included is expenditure on the general administration and regulation of the education system; on research; and on such subsidiary services as transport, school meals, and medical and dental services in schools. The differences between the percentages shown in this table and those in table 14 are attributable to differences in the years of the data.

Health covers public expenditure on hospitals, medical and dental centers, and clinics with a major medical component; on national health and medical insurance schemes; and on family planning and preventive care. Also included is expenditure for the administration and regulation of relevant government departments, hospitals and clinics, health and sanitation, national health and medical insurance schemes and research and development.

Housing and community amenities covers public expenditure on housing including the support of housing and slum clearance activities, community development activities and sanitary services. Social security and welfare covers compensation to the sick and temporarily disabled for loss of income; payments to the elderly, the permanently disabled, and the unemployed; and family, maternity, and child allowances. The welfare category also includes the cost of welfare services such as care of the aged, the disabled and children, as well as the cost of general administration, regulation, and research associated with social security and welfare services.

Economic services includes public expenditure associated with the regulation, support, and more efficient operation of business, and economic development; redressing regional imbalances, and the creation of employment opportunities. Among the activities included are: research, trade promotion, geological surveys, and inspection and regulation of particular industries. The five major categories of economic services are fuel and energy, agriculture, industry, transportation and communication, and other economic affairs and services.

The other category covers expenditure on the general administration of government not included elsewhere; for a few countries, it also includes amounts that could not be allocated to other components.

Overall surplus/deficit is defined as current and capital revenue and grants received, less total expenditure less lending minus repayments.

The means for the percentage distribution of central government expenditure are computed from group totals for the expenditure components and central government expenditure in current dollars. Those for total government expenditure as a percentage of GNP and for overall surplus/deficit as a percentage of GNP are computed from group totals for the above total expenditures and overall surplus/deficit in current dollars, and GNP in current dollars, respectively.

The data on central government expenditure are from the IMF Government Finance Statistics Yearbook, 1986, IMF data files, and World Bank country documentation. The accounts of each country are reported using the system of definitions and classifications found in the IMF Manual on Government Finance Statistics. However, due to differences in data coverage, the components of central government expenditure may not be comparable across countries.

Table 10. Disbursements of official development assistance

Net disbursements of ODA from all sources consist of loans and grants made on concessional financial terms by all bilateral agencies and multilateral sources with the object of promoting economic development and welfare. Net disbursements equal gross disbursements less payments to donors for amortization. Net disbursements are shown per capita and as a percentage of GNP.

The means of per capita ODA are computed from group aggregates for population and for ODA; those for ODA as a percentage of GNP are computed from group totals for ODA and for GNP in current U.S. dollars.

Table 11. External public debt service ratios

External public debt outstanding and disbursed represents public and publicly guaranteed loans drawn at year-end, net of repayments of principal and write-offs. To estimate external public debt as a percentage of GNP, public debt is converted into U.S. dollars from currencies of repayment at end-of-year official exchange rates. GNP is converted from national currencies into current dollars by the method described in the notes to Table 8. The mean ratios of external debt to GNP are weighted by current dollar GNP.

Interest payments are actual payments made on the disbursed and outstanding public and publicly guaranteed debt in foreign currencies, goods, or services. They include commitment charges on undisbursed debt when such information is available.

Debt service is the sum of actual repayments of principal (amortization) and actual payments of interest made in foreign currencies, goods, or services on external public and publicly guaranteed debt. The mean ratios of public debt and debt service to GNP are weighted by GNP in current dollars. The mean ratios of debt service to exports of goods and services are weighted by exports of goods and services in current dollars.

PART C. SUPPLEMENTARY AND SUMMARY TABLES

Table 1. Countries with Populations Under One-Half Million People

Unless otherwise noted, these data come from the Education Sector Policy Paper, African Development Bank, January 1986. All such entries are based on the most recent information available, generally from the years 1979, 1980, or 1981.

Other data sources are:

- a/ The World Bank, 1983.
- b/ UNESCO Statistical Yearbook 1986; figures are for 1982.
- c/ The World Bank, 1987; figure is for 1985.
- d/ The World Bank, 1984.
- e/ Literacy rate; The World Bank, 1984.

f/ Includes 20,065 and 1,782 students in public and private schools, respectively. Excludes 2,500 students enrolled in independent private schools.

g/ The World Bank, 1986; figure is for 1977.

Table 3. Estimated Average Years of Education Attended by Working Age Population

The average years of education is the ratio of "educational stock" to working age population. The educational stock series was constructed as a weighted sum of the enrollment of students by level (primary, secondary, post-secondary) during the previous 58 years. The term "working age population" includes ages 15 through 64. For details see Lau-Jamison (1987).

Table 4. Literacy

The "adult literacy rate" is the percentage of persons aged 15 and over who can read and write. The 1960 data come from the World Development Report 1983 and other World Bank data sources. These data are based primarily on information from UNESCO, supplemented by World Bank data. Because these data are normally gathered in large-scale demographic surveys and censuses, they often are not available for the more recent year. For some countries the estimates are for years other than, but generally not more than two years distant from, those specified. Thus the series are not comparable for all countries. Data for 1985 or latest year data are from The Current Literacy Structure in the World, UNESCO, 1985.

Table 5. Comparisons of Achievement

Column (a) is based on data from the International Association for the Evaluation of Educational Achievement (IEA) Second Study of Mathematics as reported in [Livingstone, 1985]. Tests were administered in participating countries to 13-year-old students in five mathematics subfields.

Columns (b) and (c) are based on [Heyneman, 1980]. Scores for all countries other than Malawi were obtained under the auspices of the IEA. Respondents in these countries were ten years old. The scores for Malawi are not strictly comparable. The tests were administered by a World Bank mission in just two districts of the country (Mulanje and Nsanje). The questions were in English rather than in the vernacular languages of the districts (although instruction past the first few years of primary school in Malawi is also in English). The Malawian respondents were older (16 years old on average) than the IEA surveyed students.

Table 6. Gross Primary Enrollment Ratios

All figures are for 1983. All are percents except those in column (f), which are 1983 dollars. The averages shown are weighted means (w) and medians (m).

**Table 7. Enrollment Characteristics and Education Expenditures by
Secondary Enrollment Groups**

All figures are for 1982. The averages shown are weighted means (w) and medians (m).

Bibliography of data sources

Education indicators U. N. Educational, Scientific and Cultural Organization tape.
_____. Various years. Statistical Yearbook. Paris.
_____. 1985. Female Participation in Higher Education. Paris.
National sources. World Bank country documentation. World Bank data files.

External education aid Millot, B., F. Orivel, and J. Rasera. 1987. L'aide exterieure a l'education en Afrique sub-saharienne. Discussion Paper Series No. EDT65. Education and Training Department, The World Bank.
U.N. Development Program data files.
U.S. Agency for International Development country documentation.
World Bank documentation.

National accounts and economic indicators International Monetary Fund. 1985. Government Finance Statistics Yearbook, Vol. IX. Washington, D.C.
Sawyer, Malcolm, 1976. Income Distribution in OECD Countries. OECD Occasional Studies. Paris.
U.N. Department of International Economic and Social Affairs. Various years. Statistical Yearbook. New York.
_____. 1981. A Survey of National Sources of Income Distribution Statistics. Statistical Papers, series M., no. 72. New York.
_____. 1985. National Accounts Statistic Compendium of Income Distribution Statistics. Statistical Papers, series M, no. 79. New York.
FAO, IMF and UNIDO data files.
National sources. World Bank country documentation.
World Bank data files.

Balance of payments and debt The Organisation for Economic Co-operation and Development. Various Years. Development Co-operation. Paris.
_____. 1986. Geographical Distribution of Financial Flows to Developing Countries. Paris.
IMF balance of payments data files. World Bank Debtor Reporting System.

Languages Bruhn. 1984. "African Lingua Francas." Center for Applied Linguistics. Washington, D.C.
Center for Applied Linguistics. 1984. Country Status Reports. Washington, D.C.
Morrison et al. 1972. Black Africa. The Free Press. New York.
Skinner. 1985. "Degree of Multilingualism." University of Wisconsin-Madison, unpublished table.
Tadadjeu. 1980. "A Model for Functional Trilingual Educational Planning in Africa." UNESCO. Paris.

Population U.N. Department of International Economic and Social Affairs. Various years. Demographic Yearbook. New York.
_____. Various years. Population and Vital Statistics Report. New York.
_____. 1980. Patterns of Urban and Rural Population Growth. New York.
_____. 1982. "Infant Mortality: World Estimates and Projections, 1950-2025." Population Bulletin of the United Nations, no.14. New York.
Bulletin of the United Nations, no. 14. New York.
_____. Updated printouts. World Population Prospects as Assessed in 1982. New York.
_____. 1983. World Population Trends and Policies: 1983 Monitoring Report. New York.
_____. 1985. Estimates and Projections of Urban, Rural and City Populations, 1950-2025; The 1982 Assessment. New York.
World Bank data files.

Social indicators Food and Agriculture Organization. October 1985. Food Aid Bulletin. Rome.
_____. Food Aid in Figures. Rome.
_____. Production Yearbook.
_____. Trade Yearbook. "Standard" Computer Tape.
U.N. Department of International and Economic Affairs.
_____. Various years. Demographic Yearbook. New York.
_____. Various years. Statistical Yearbook. Paris.
FAO and World Bank data files.

Labor force International Labour Office. 1986. Labour Force Estimates and Projections, 1950-2000. 3rd ed. Geneva.
International Labour Organization tapes. World Bank data files.

Student achievement Heyneman, S. 1980. "Evaluation of Human Capital in Malawi." World Bank Working Paper No. 420. The World Bank, Washington, D.C.

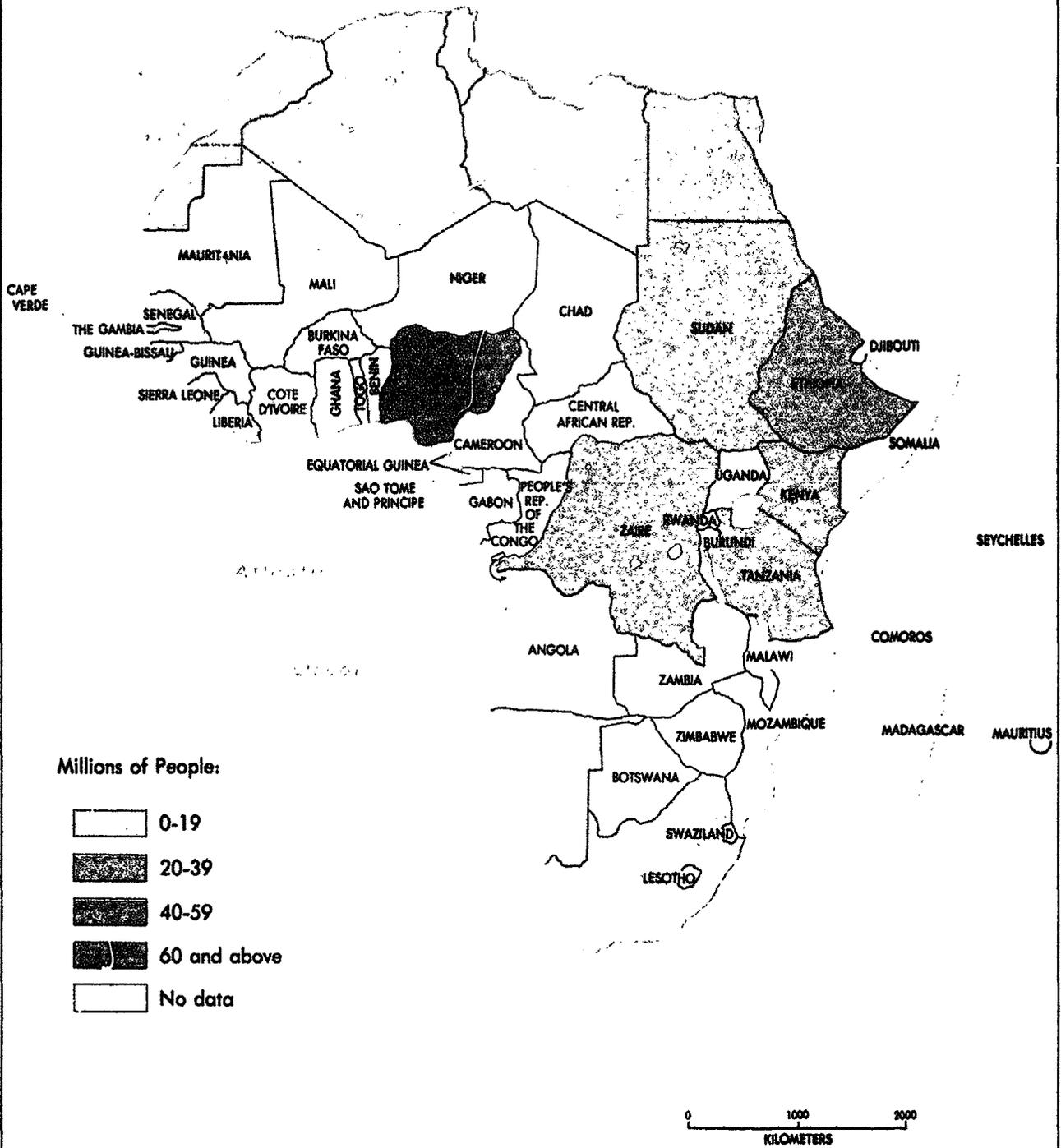
Livingstone, I. 1985. "Perception of the Intended and Implemented Mathematics Curriculum." University of Illinois (Mimeo).

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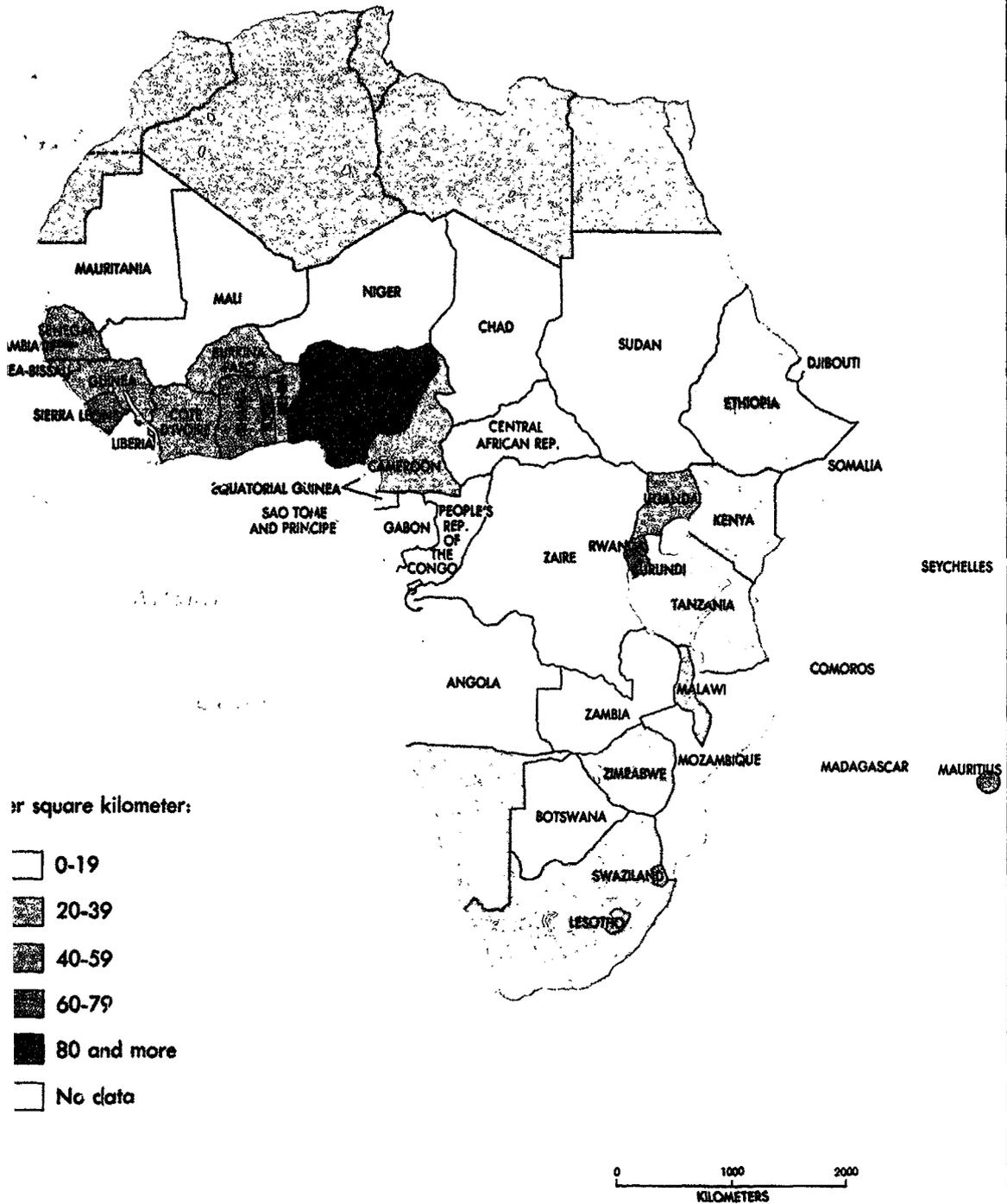
MAP SECTION

SUB-SAHARAN AFRICA TOTAL POPULATION 1984



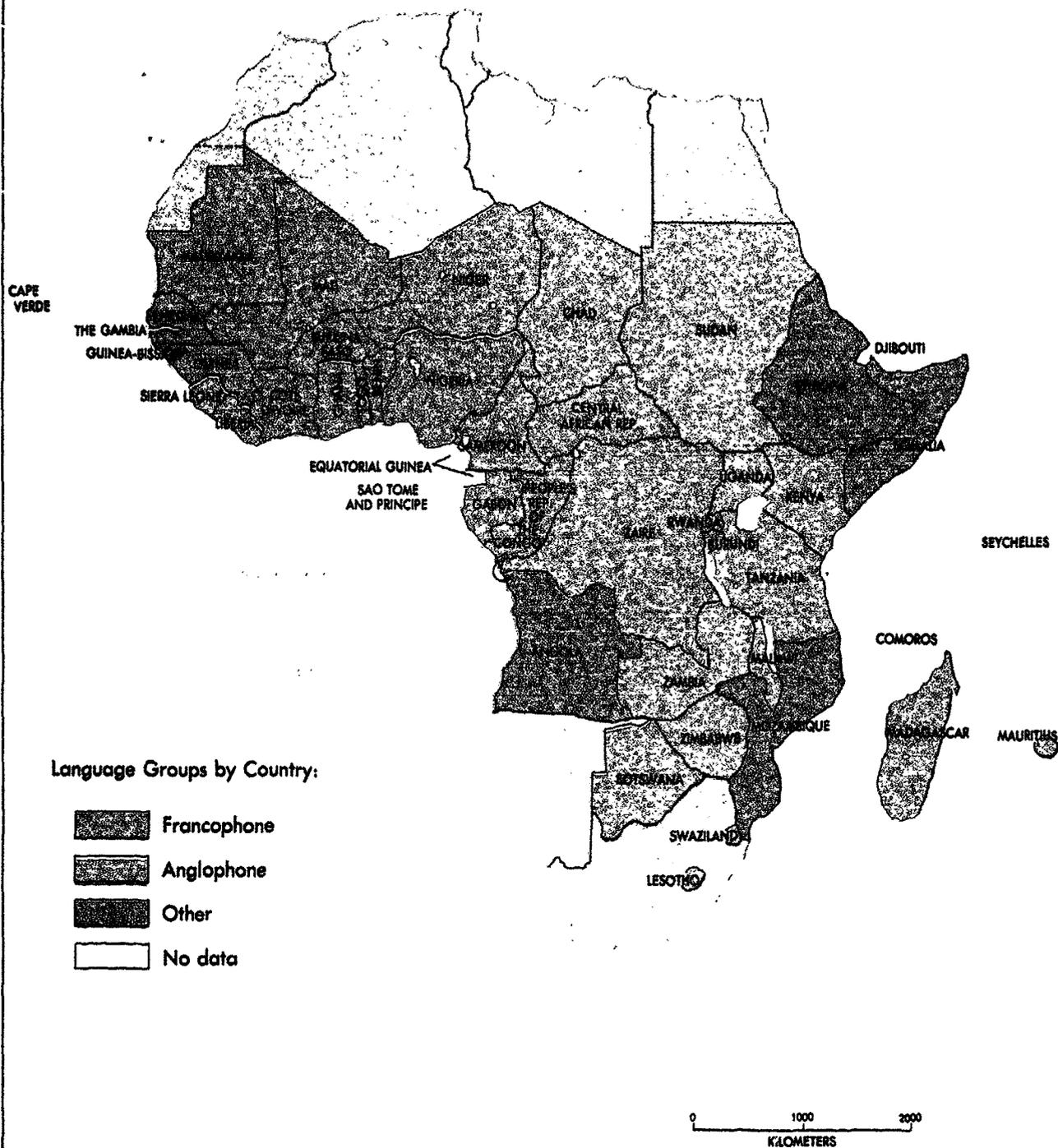
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SUB-SAHARAN AFRICA POPULATION DENSITY 1984



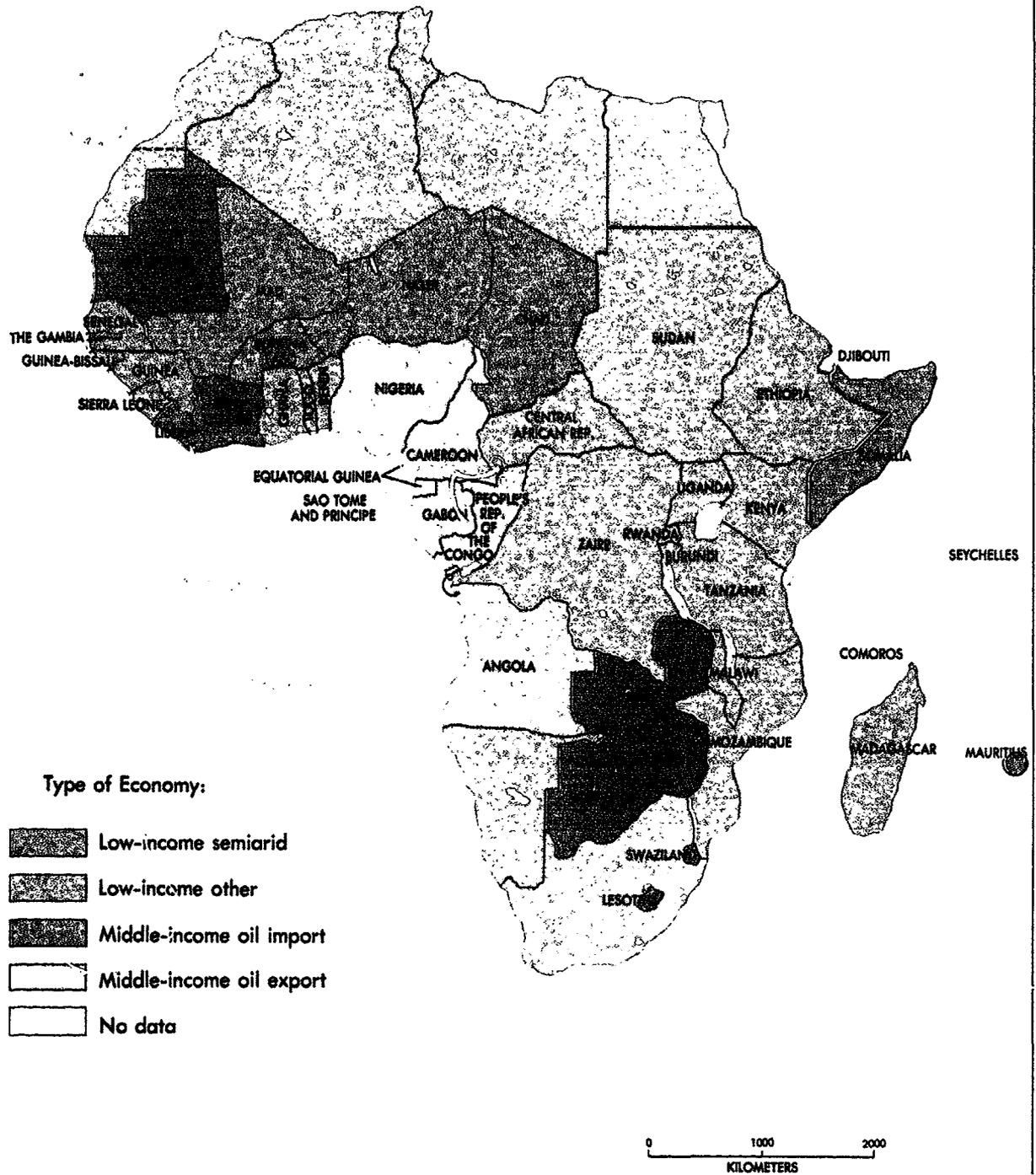
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SUB-SAHARAN AFRICA LANGUAGE GROUPS 1984



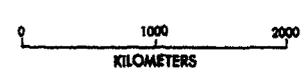
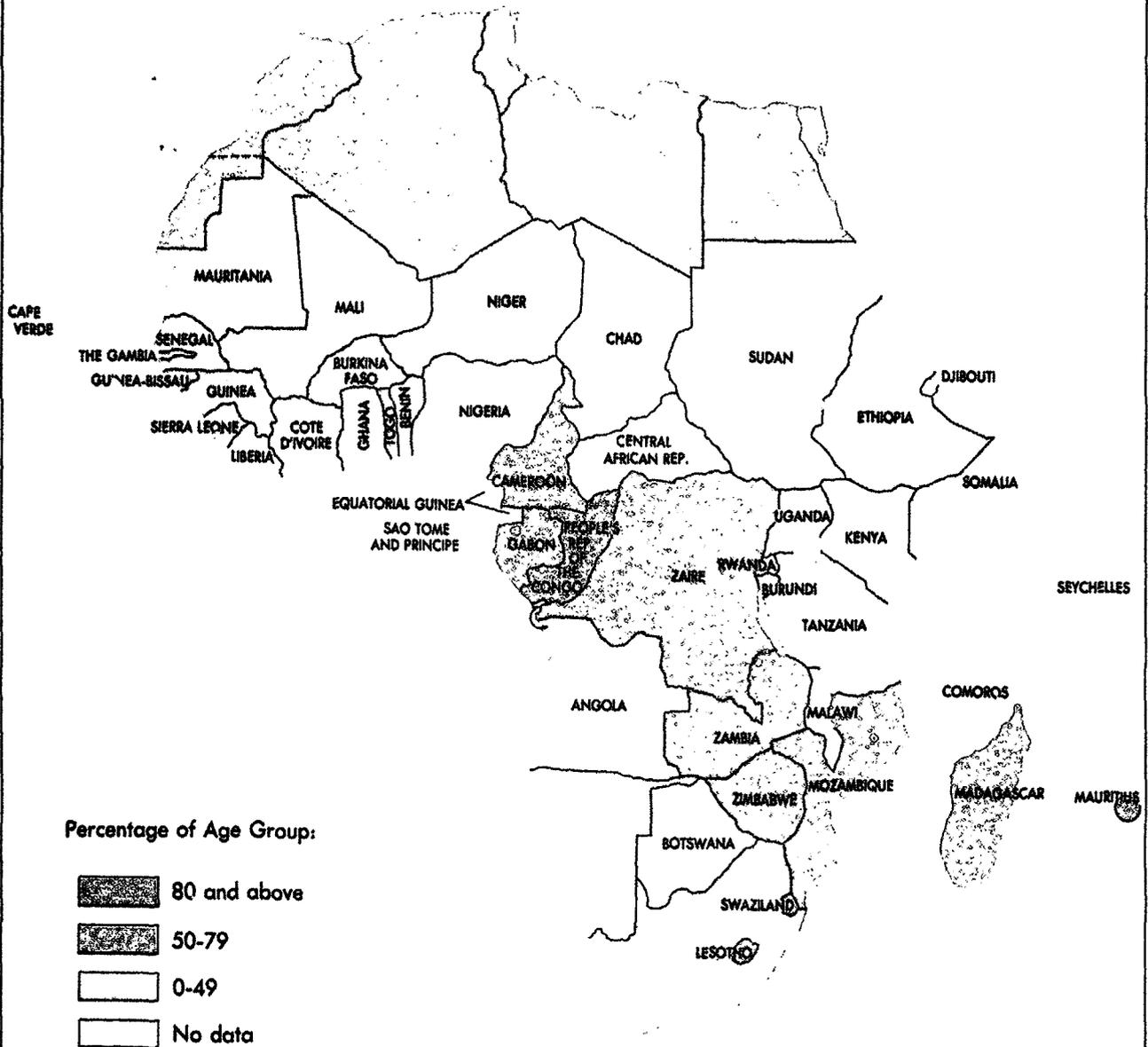
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SUB-SAHARAN AFRICA INCOME GROUPINGS 1984



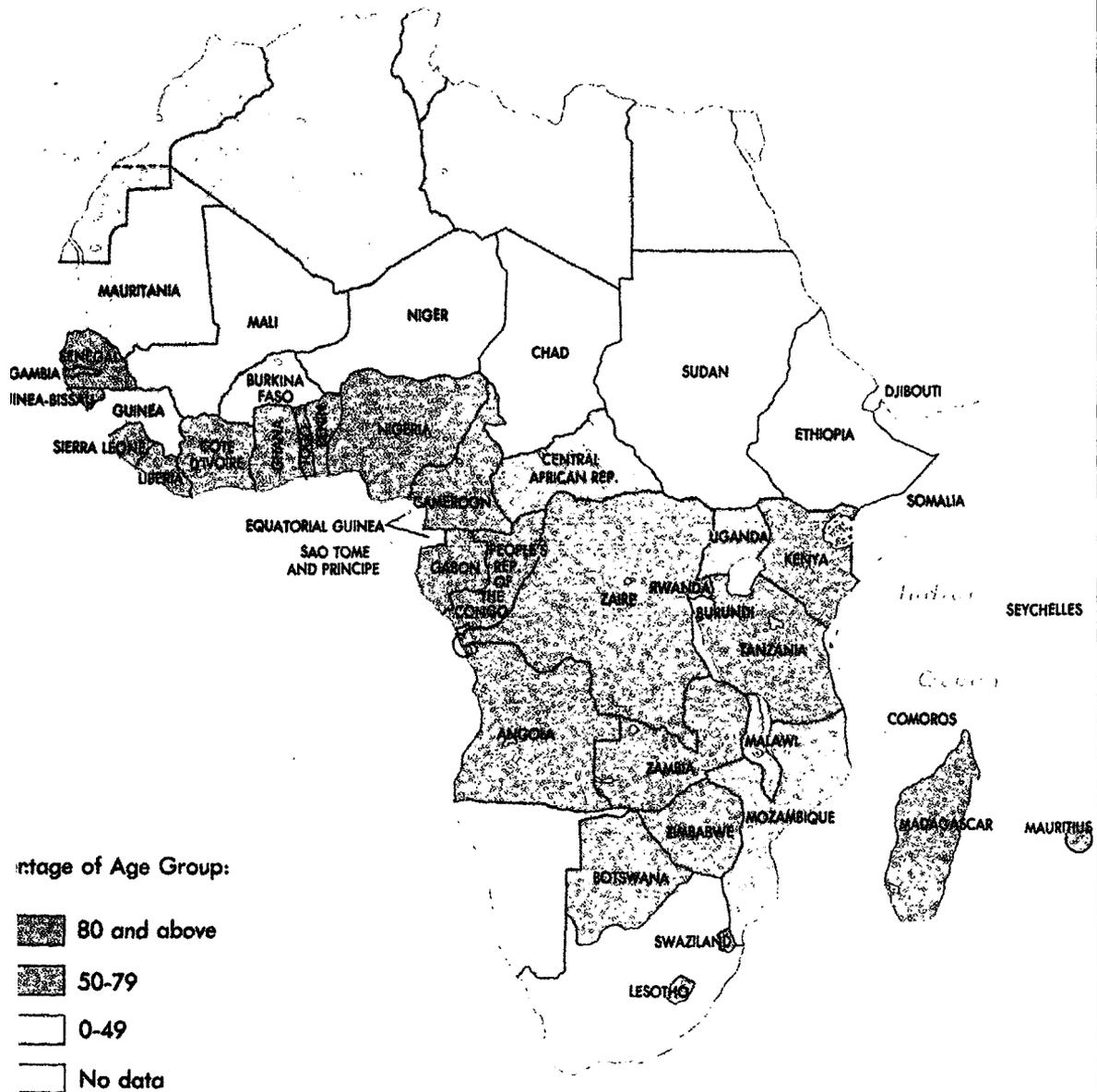
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SUB-SAHARAN AFRICA ENROLLMENT IN PRIMARY SCHOOLS 1960



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SUB-SAHARAN AFRICA ENROLLMENT IN PRIMARY SCHOOLS 1983



0 1000 2000
KILOMETERS

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